United States Department of Agriculture
Forest Service
Pacific Southwest Region
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San Bernardino National Forest

Land Management Plan Monitoring and Evaluation Report





I am pleased to present the San Bernardino National Forest's annual Monitoring and Evaluation Report for your review. The purpose of the Monitoring and Evaluation Report is to determine the effectiveness of the Land Management Plan and whether changes are necessary to the Plan, or in program or project implementation.

The 2006 Record of Decision for the San Bernardino National Forest Land Management Plan identified the monitoring requirements as the cornerstone of our program emphasis for the future. In 2014, the Forest Plan was amended to incorporate changes to land use zones and Forest Plan Monitoring. This report is completed under the newly revised monitoring strategy, however in 2015, the Forest completed the transition to the new monitoring program as required under the 2012 Planning Rule, and this transition includes new processes for monitoring that will be used in this fiscal year 2016 monitoring report as well as future reports. The lessons we learn from monitoring help improve our programs and projects. We continue to find ways to increase efficiency and effectiveness of our monitoring and evaluation efforts. The fifth year monitoring report answered questions designed to evaluate progress toward the Forest's desired conditions, and will again next year in the tenth year monitoring report. It is my commitment to keep you informed of the monitoring results by providing this report. If you would like to participate in future monitoring, please contact the Forest.

Your continued interest in the San Bernardino National Forest Land Management Plan is just one way for you to stay current with activities on your public lands. Additional information can be found on our website at **http://www.fs.usda.gov/sbnf/.**

Sincerely,

(for) Kay Wiard 10/31/17

JODY NOIRON Date
Forest Supervisor
San Bernardino National Forest

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Introduction

Monitoring and evaluation identifies the need to adjust desired conditions, goals, objectives, standards, and guidelines, as forest conditions change. It provides a structured process for National Forest specialists and leadership to learn from what we do, in an effort always to improve. Monitoring and evaluation helps the Forest Service and the public determine how the Land Management Plan is being implemented, whether plan implementation is achieving desired outcomes, and whether assumptions made in the planning process are valid. Monitoring requirements are found in all three parts of the 2006 San Bernardino National Forest Land Management Plan (LMP). Appendix C in Part 3 of the LMP (as amended in 2014) summarizes the monitoring requirements identified in each part of the LMP.

Part 1 monitoring identifies outcome questions that will help evaluate movement towards the desired conditions over the long-term. The outcome evaluation questions are measured through indicators of each goal in which the San Bernardino National Forest (Forest) implements projects that move it toward desired conditions. The baseline conditions that will be used to answer these questions and evaluate progress over time were established within the LMP, or have been developed over time.

Part 2 monitoring focuses on program implementation including inventory through accomplishments tracked in Forest Service corporate databases. The annual accomplishment indicators determine if the program areas are implementing the objectives and strategies established in Part 2 of the LMP.

Part 3 monitoring is conducted at the project or activity level in order to evaluate the effectiveness and application of design criteria established in the LMP. The new projects implemented in fiscal year 2015 and ongoing activities and sites were selected for monitoring using the expanded procedure developed under the 2014 Plan Amendment. Selected projects and ongoing activities or sites were then visited by an interdisciplinary monitoring team to review the application and effectiveness of the design criteria. If problems in implementation were detected or if design criteria were determined to be ineffective, the team recommended possible corrective actions. All recommendations are deliberative in nature and do not constitute a management requirement or a commitment of funds. LMP monitoring was combined with Best Management Practice (BMP) monitoring when circumstances allowed. The San Bernardino National Forest Leadership Team (FLT) participated in monitoring on the Mountaintop Ranger District for one day. The FLT participates in LMP Part 3 monitoring and evaluation each year by attending a fieldtrip to the projects, activities, or sites on a Ranger District, which is rotated each year.

The Fiscal Year (FY) 2015 LMP Monitoring and Evaluation Report documents the evaluation of selected projects and programs where activities occurred during October 1, 2014 through September 30, 2015. The primary purpose of this evaluation is to determine the effectiveness of the LMP and whether changes in the LMP or in project or program implementation are necessary.

The Forest Service adopted new planning regulations (planning rule) in April 2012, pursuant to the National Forest Management Act. The planning rule requires that existing monitoring programs be changed to meet 8 specific monitoring criteria (36 CFR 219.12(a)(5)):

(i) The status of select watershed conditions.
(ii) The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
(iii) The status of focal species to assess the ecological conditions required under § 219.9.

(iv) The status of a select set of the ecological conditions required under § 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
(v) The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
(vi) Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
(vii) Progress toward meeting the desired conditions and objectives in the plan, including for providing multiple use opportunities.
(viii) The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)).

In May 2015, the San Bernardino National Forest completed an administrative change to the LMP adding new monitoring questions for fire activity, non-native annual grasses, fire regime departure, special uses, and streamflows, adjusting the monitoring question for tree mortality and the indicator for Biological Resource Conditions (Goal 6.2), and adjusting the reporting frequency for all questions and indicators from every 5 years to every 2 years, as mandated by the planning rule. Criterion (viii) applies only to National Forests with timber production programs, which the San Bernardino National Forest does not have. Therefore, no monitoring is needed for this criterion, and it has not been included in the new monitoring framework.

Management indicator species were included in the LMP for monitoring as an indicator of progress towards meeting Goal 6.2. Under the planning rule, focal species replace management indicator species. An interdisciplinary team reviewed potential focal species and selected non-native annual grasses. This decision was also documented using the administrative change process in May 2015. The combined set of seven existing monitoring questions and six of seven new or modified questions, investigate ecological conditions that sustain at-risk species and target better indicators of progress towards Goal 6.2 than the habitat monitoring of management indicator species. Therefore, in conformance to the planning rule, all references to management indicator species will be removed from the San Bernardino National Forest LMP.

The new monitoring requirements are being discussed and summarized for the first time in this FY 2016 Monitoring Report. All other components of the existing plan monitoring framework will be retained, including annual monitoring of selected projects and performance indicators (Parts 2 and 3 Monitoring).

The new monitoring framework and documentation of best available science required by the planning rule are available at:

http://www.fs.usda.gov/main/sbnf/landmanagement/planning

Part 1 Monitoring

Monitoring and evaluation provide knowledge and information to keep the forest plan viable. Appropriate selection of indicators, and monitoring and evaluation of key results helps the Forest Service determine if the desired conditions identified in the forest plan are being met. Monitoring and evaluation also help the Forest Service determine if there should be changes to goals and objectives, or monitoring methods.

Evaluation is more than reporting facts and figures. Forest plan evaluation tells how decisions have been implemented, how effective the implementation has proved to be in accomplishing desired conditions, what was learned along the way, and how valid management assumptions are that led to forest plan decisions. Monitoring and adaptive management should lead to improved implementation and resource conditions.

Adaptive management is the foundation for planning and management. The planning regulations direct that forest plans be revised at least every 15 years (36 CFR 219.7(a)). Forest plans need to be dynamic to account for changed resource conditions, such as: large-scale wildland fire or listing of additional species under the Endangered Species Act; new information and science such as taking a systems approach; new or modified regulations; and new or modified policies such as the Roads Analysis Policy.

Monitoring and evaluation are critical to adaptive management. Other component parts include inventory, assessment, planning, and implementation. No single component can be isolated from the whole of adaptive management.

Monitoring and evaluation processes begin by identifying key questions Forest Service managers need to answer about forest plan implementation. Understanding the questions helps to identify information needs, data collection designs, and tools needed to turn data into information and knowledge. Managers must also have a clear understanding of baseline conditions (current resource condition at the time of signing the Record of Decision) versus desired conditions and the evaluation strategies that will help determine if movement towards desired conditions is occurring. Appropriate selection of indicators helps assess resource status and trends and progress towards meeting the desired conditions identified in the forest plan.

The aggregated outcome of project level work reflects progress towards achieving the desired conditions of the forest plan and the contribution to agencies' priorities. This emphasizes the importance of using the National Strategic Plan desired conditions, goals and objectives that apply to the planning area in the forest plan and to use common criteria and indicators as appropriate in the forest plan. This approach will enable monitoring and evaluation efficiencies and provide critical information on the national forests' contribution to the agency's mission, goals, and objectives.

In 2014, the Forest Plan was amended to incorporate changes to Forest Plan monitoring and evaluation requirements including adding a question for mortality risk, adding a question for riparian condition, removing the questions for general forest activities, adding an indicator for unauthorized roads and trails and clarifying and updating several indicators to reflect changes in current inventory methodology since the 2006 monitoring and evaluation requirements. These revisions have been made as a result of past monitoring and for the purpose of improving upon land management plan implementation. All revisions are incorporated into Table 1 below, which provides the Key Monitoring Questions by resource area, the indicator for that question, what monitoring action(s) will occur and the appropriate data to use, and the reliability of the data.

Table 1. Part 1 Monitoring Summary

Goals	Monitoring Question	Indicators	Monitoring Action
1.1	Has the forest made progress in reducing the number of acres that are adjacent to development within Wildland Urban Interface (WUI) defense zones that are classified as high risk? Are wildfires becoming larger, more frequent, or more severe, and is there a seasonal shift in fire activity?	Acres of High Hazard and High Risk in WUI Defense Zone, Total and Mean Fire Size, Ignition Density, Fire Severity, and Monthly Area Burned	Use baseline acres from the 2006 Southern California Land Management Plans analysis; subtracting the areas treated, and areas that are no longer WUI Defense Zone; and adding acres from areas that have reverted to high hazard and risk due to maintenance backlog, and areas that have become WUI Defense Zone due to development
1.2	Has the forest been successful at reducing mortality risk? Is tree mortality increasing across the landscape, and is it distributed evenly across elevations? Are fire frequencies becoming more departed from the natural range of variation?	Mortality Risk Assessment; Forest Health Protection Mortality Surveys; Proportion of Landscape in Departed Fire Frequency	Compare the annual National Insect and Disease Risk Map (NIDRM) data and cross referencing mortality within the reporting period and compare every five years
1.2.1	Is the forest making progress toward increasing the percentage of montane conifer forests in Condition Class 1?	Departure from desired fire regime, acres by Fire Regime I	Use baseline acres of Montane Conifer, Fire Regime I, from the 2006 Southern California Land Management Plans analysis that were in Condition Class 1; subtracting the areas that have not had mechanical treatment, prescribed under burning, or wildfire within the previous 35 years; and adding the areas that have been mechanically treated, areas that have had prescribed under burning, and areas that have had wildfire over the five year monitoring period
1.2.2	Is the forest making progress toward maintaining or increasing the percentage of vegetation types that naturally occur in Fire Regime IV in Condition Class 1?	Departure from desired fire regime, acres by Fire Regime IV	Use baseline acres of Chaparral, Coastal Sage Scrub, Gabbro, Serpentine, Closed-cone conifer, and Lower montane vegetation types, Fire Regime IV, from the 2006 Southern California Land Management Plans analysis that were in Condition Class 1; subtracting the areas that have a return interval of disturbance that is less than 35 years over the five year monitoring period through mechanical treatment, prescribed under burning, and wildfire; and adding the areas that have not had mechanical treatment, prescribed under burning, or wildfire within the previous 35 years
1.2.3	Has the forest been successful at maintaining long fire-free intervals in habitats where fire is naturally uncommon?	Departure from desired fire regime, acres by Fire Regime V	Use baseline acres of Alpine and Subalpine, Desert woodlands, forests and scrub, and Bigcone Douglas-fir vegetation types, Fire Regime V, from the 2006 Southern California Land Management Plans analysis that were in Condition Class 1; subtracting the areas

Goals	Monitoring Question	Indicators	Monitoring Action
			that have a return interval of disturbance that is less than 200 years over the five year monitoring period through mechanical treatment, prescribed under burning, and wildfire; and adding the areas that have not had mechanical treatment, prescribed under burning, or wildfire within the previous 200 years
2.1	Are the national forests' reported occurrences of invasive plants/animals showing a stable or decreasing trend?	Acres of treatments in reported occurrences	Establish a baseline for the acres of reported occurrences of invasive plant and animal species; subtracting the areas that have been effectively treated; and adding areas where new presence of invasive species has been reported
3.1	Are trends in indicators and visitor satisfaction surveys indicating that the forest has provided quality, sustainable recreation opportunities that result in increased visitor satisfaction?	Visitor Satisfaction (National Visitor Use Monitoring)	Use baseline scores in Visitor Satisfaction from NVUM that occurred around the 2006 Southern California Land Management Plans and comparing the five year NVUM Visitor Satisfaction scores
3.2	Are trends in indicators and visitor satisfaction surveys depicting the forest has provided solitude and challenge in an environment where human influences do not impede the free play of natural forces?	Wilderness Condition	Use baseline scores in Visitor Satisfaction for Wilderness from NVUM that occurred around the 2006 Southern California Land Management Plans and compare the five year NVUM Visitor Satisfaction scores for Wilderness; national reporting systems for management actions in wilderness; and accomplishment data related to the National 10-year Wilderness Stewardship Challenge
4.1a	Has the forest been successful at protecting ecosystem health while providing mineral and energy resources for development?	Number of Mineral and Energy Development Projects Proposed and Approved	Compare the number of mineral and energy development projects proposed with those approved to establish a baseline of impacts to resources
		Minerals and Energy Success at protecting Ecosystem Health	Compare the number of acres of habitat conserved as part of mitigation for mineral and energy development projects
4.1b	Has the forest been successful at protecting ecosystem health while providing renewable resources for development?	Number of Renewable Resource Projects Proposed and Approved	Compare the number of renewable resource projects proposed with those approved to establish a baseline of impacts to resources
		Renewable Resources Success at protecting Ecosystem Health	Compare the number of acres of habitat conserved as part of mitigation for renewable resource projects
5.1	Is the forest making progress toward sustaining Class 1 watershed conditions while reducing the number of Condition Class 2 and 3 watersheds?	Number of Watersheds in each Condition Class; Monthly Streamflows, Timing and Magnitude of Peak Flows, Degree of Variation	Compare baseline number of watersheds in each Condition Class from the 2006 Southern California Land Management Plans analysis with the five year Watershed Condition Assessment

Goals	Monitoring Question	Indicators	Monitoring Action
5.2	Is the forest increasing the proper functioning condition of riparian areas? How do streamflows compare with historical records?	Change in Indicator Score for Aquatic Habitat, Aquatic Biota and Riparian Vegetation; Monthly Streamflows, Timing and Magnitude of Peak Flows, Degree of Variation	Compare the change in score from the Watershed Condition Assessment indicators (Coordinate with Goal 5.1)
6.1	Is forest rangeland management maintaining or improving progress towards sustainable rangelands and ecosystem health?	Percent of key areas in active allotments meeting or moving towards desired conditions	Compare baseline percent of Key Areas in active allotments meeting or moving towards desired conditions from the 2006 Southern California Land Management Plans analysis with five year percent
6.2	Are trends in resource conditions indicating that habitat conditions for fish, wildlife, and rare plants are in a stable or upward trend? Are chaparral and coastal sage scrub vegetation communities type converting to non-native annual grasslands?	Habitat Condition of At-Risk Species; Extent of Non-native Annual Grasses	Use baseline habitat condition from the 2006 Southern California Land Management Plans analysis and compare with the existing habitat condition on the southern California National Forests.
7.1	Is the forest balancing the need for new infrastructure with restoration opportunities or land ownership adjustment to meet the desired conditions? How many of each type of special use authorization, mining permit, and forest product permit are active on the forest?	Land Ownership Complexity	Calculate the miles of exterior and interior boundary divided by the acres of National Forest System (NFS) lands and compare from the 2006 Southern California Land Management Plans analysis
		Authorized and Administrative Infrastructure	Establish a baseline number of authorized and administrative infrastructure from the 2006 Southern California Land Management Plans analysis and comparing the existing authorized and administrative infrastructure on the National Forests
		Miles of Unauthorized Motorized Routes; Number of special use authorizations and permits by type	Establish a baseline for the miles of unauthorized motorized roads and trails reported; subtracting the miles that have been decommissioned; and adding the miles of unauthorized motorized roads and trails that have been reported

The five year trends were measured and reported in the fiscal year 2010 San Bernardino National Forest Land Management Plan Monitoring and Evaluation Report. Along with the 10 year trends, these will no longer be reported, as we have transitioned to the new monitoring program under the 2012 Planning Rule.

The following long term monitoring indicators and trends are a result of the San Bernardino National Forest Land Management Monitoring Plan Guide:

Forest GOAL 1.1 Acres of High Hazard and High Risk in WUI Defense Zone

The Forest has accomplished 4,343 acres of hazardous fuels reduction treatments in FY 16. This accomplishment will be used as the annual indicator of progress toward the desired condition and will be represented in current and future trend analysis reports. This contributes to the National Strategic Plan (objectives 1.1 and 1.3).

The wildland/urban interface defense zone is that portion of the wildland/urban interface that is directly adjacent to structures. High hazard fuels are those that have the potential to burn with high intensity. Risk is related to human values or risk of loss. The presence of structures is an indicator of risk.

The method of calculating and indicators of progress toward Goal 1.1 will be summarized in the FY17 report, using the wildland/urban defense zone from the Land Management Plan analysis database. Acres of treatments in the wildland/urban defense zone will be calculated for each of the fire regimes and these entries will represent the annual indicator of progress toward the desired condition.

A protocol was developed to evaluate whether temporal trends are evident for wildfire size, frequency, severity, and seasonality across the Southern California National Forests. As of 2016, the first report to address this monitoring question, no trends were identified for any of these variables across the San Bernardino National Forest. The protocol and data are available for public review upon request.

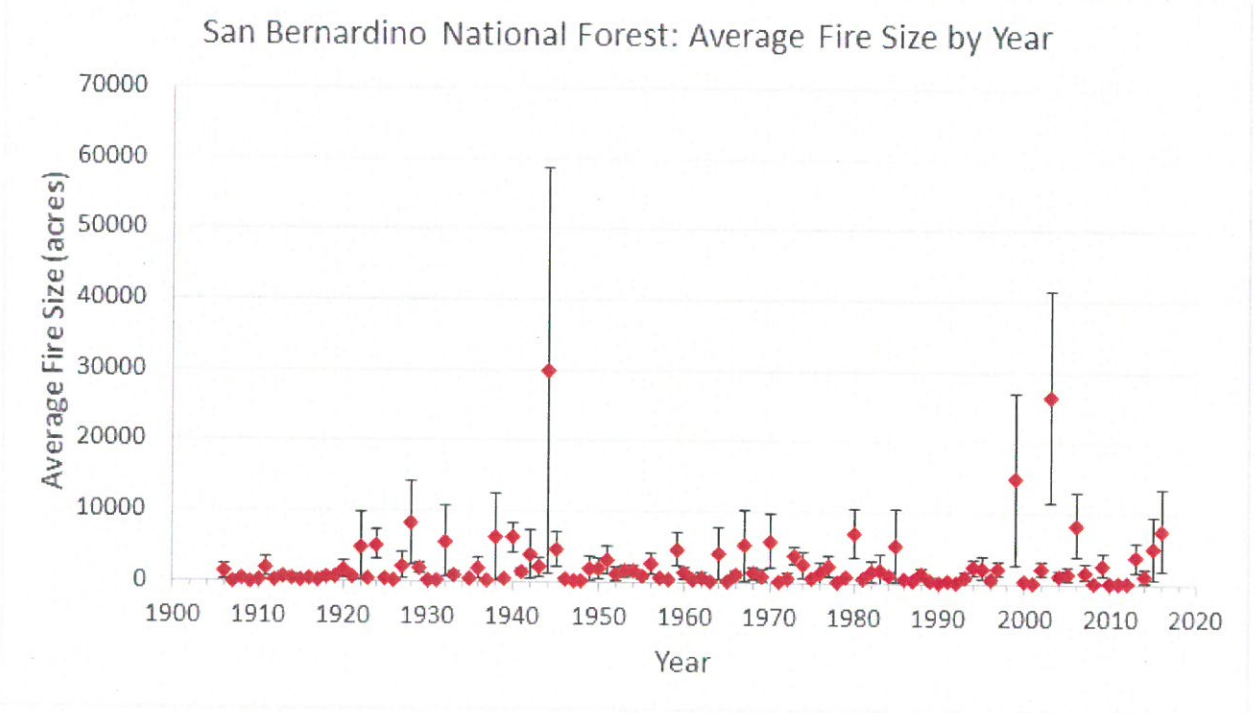


Figure 1. Average Fire Size on the San Bernardino National Forest over Time.

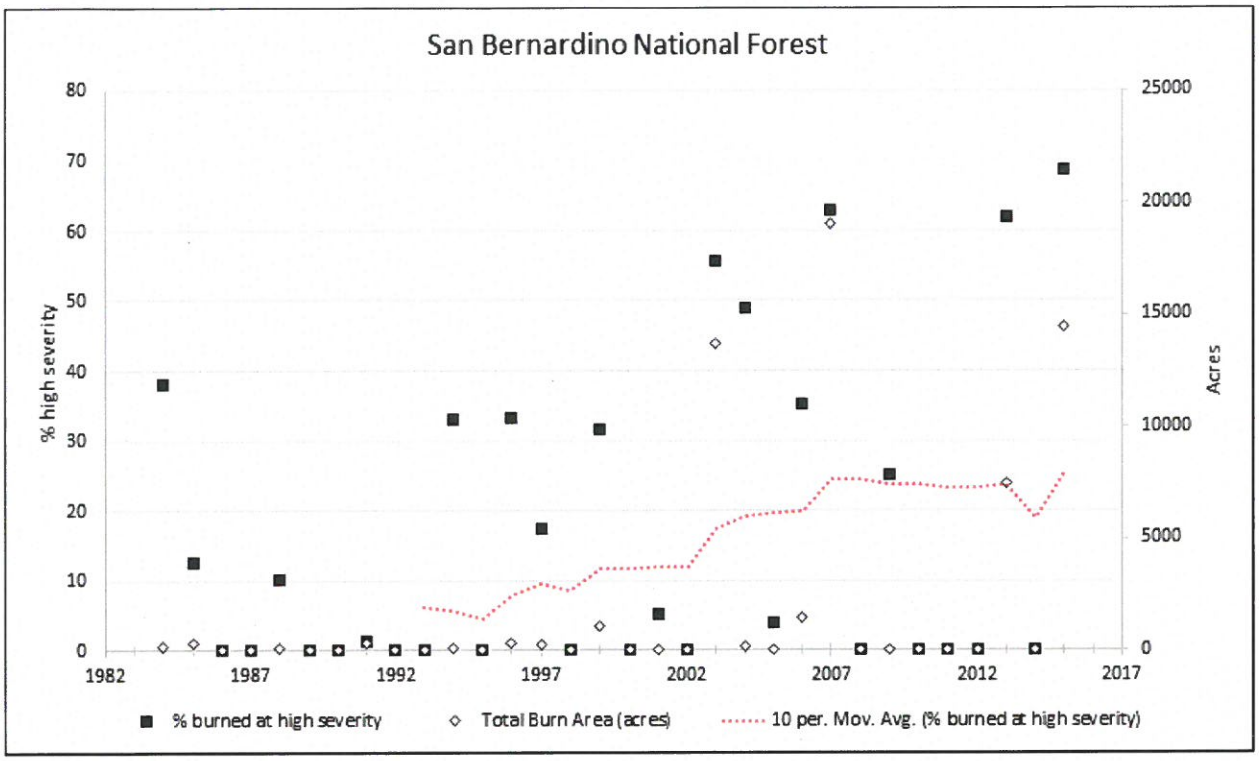


Figure 2. High Severity Conifer Forest Fires on the San Bernardino National Forest over Time.

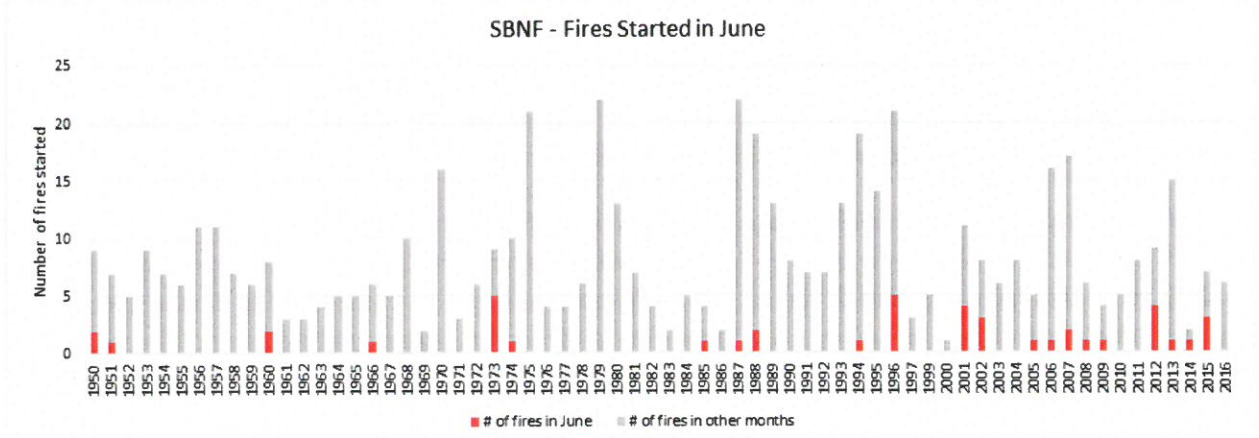


Figure 3. Fire Seasonality by Number of Fires in June on the San Bernardino National Forest.

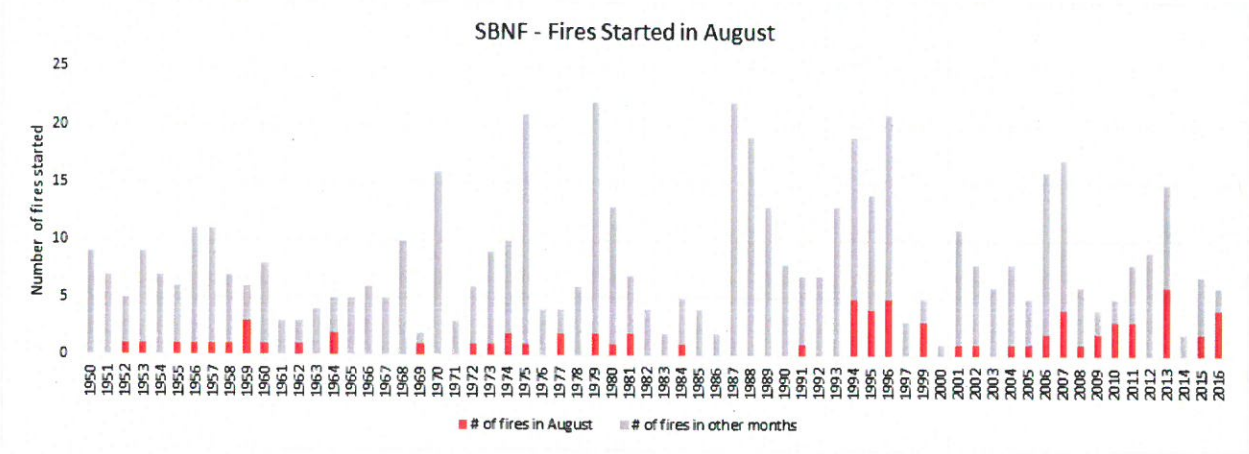


Figure 4. Fire Seasonality by Number of Fires in August on the San Bernardino National Forest.

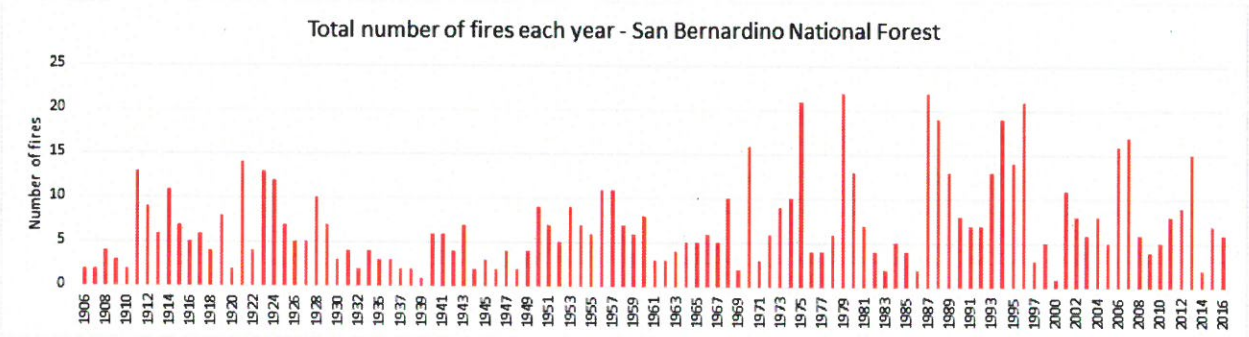


Figure 5. Fire Frequency on the San Bernardino National Forest by Year.

The San Bernardino National Forest is burning less frequently when comparing the current decade to the previous. You can see this pattern in Figures 4-5 above as there have been fewer fires lately than in the previous decades but no trends were identified for either fire number or wildfire size.

It appears that recent fires are smaller than in the past on the San Bernardino National Forest (Figure 1 above. Of course there is also the issue of Santa Ana winds driving fire size. An assumption can be made that the years with large standard deviation bars correspond to fires that burned during Santa Ana events and might be characterized as having many small fires and then one larger wildfire as an outlier to the data. . In southern California, typically the largest wildfires correspond to Santa Ana wind events, and there has been no obvious trends in the frequency of Santa Ana wind events through time..

Fire severity in conifer forests appears to be increasing through time (Figure 2), as evidenced by the Lake Fire (2015) that burned large swaths of land at high severity. Figure 2 above illustrates that in the last decade the majority of fire that burned in conifer forests burned at high severity but this trend may have recently declined. However, when looking at the data, there may be a slight upward trend for high severity fire in conifer forest only. Shrublands and other vegetation types were not included in this analysis. Management recommendation is that prescription fire and thinning would be valuable to avoid high severity fire in the future. Many of the conifer dominated lands on the San Bernardino National Forest exhibit vegetation and fuel structure that have diverged from historical conditions making them more susceptible to high severity wildfire. The pre-fire condition and fire severity levels within the

perimeter of the Lake Fire (2015) are illustrative of these patterns. Within the moderate to high burn severity categories of the Lake Fire, shrub cover spiked in areas with the highest fire severity. These areas were also devoid of conifer seedling recruitment one year post-burn. In particular, areas that burned with moderate, moderate-high or high severity did not have any regeneration of Pinus sp. It is important to note that regeneration in general (both hardwood and conifer species) is highly variable across the landscape with most of the recruitment occurring in unburned sites and sites with low fire severity. Once again, prescription fire and thinning would be valuable to allow for successful conifer regeneration and prevent type conversion to shrublands.Seasonality does not appear to have any trend in relation to the number of fires. Figures 3 and 4 above show that in 2016 there were less fires in June than in previous years compared to other months, but on the other hand, there were more fires in August than in previous years compared to other months. With that being said, there may be more fires occurring later in the summer months compared to previous years and that may be due to higher temperatures or it may be due to fuel loading if those were heavy rain years that resulted in more fine fuels growth. It has also been suggested that with warming temperatures and reduced snowpack the fire season could be extended into spring-early summer. It is possible that the fewer fires in June of 2016 has to do with it being a wetter year than the 4 years prior which were under more drought conditions and could exhibit earlier fire. Therefore if we were to look at the number of fires in May we might be able to see a trend. This data analysis is being refined and will be included in the FY 17 report.

The San Bernardino NF believes we have achieved progress in meeting Goal 1.1. The FY 17 report will summarize accomplishments in fuels treatments for fiscal years 2006 thru 2016 in the wildland/urban interface defense zone. Since many of these acres had multiple activities implemented to reduce fuels, there is a need to further analyze the data that is reported annually.

Forest Goal 1.2: Restoration of forest health

Mortality Risk Assessment; Forest Health Protection Mortality Surveys; Proportion of Landscape in Departed Fire Frequency

This indicator gauges departure from either the minimum or the maximum fire return interval. In 2006, the fire regime condition class monitoring indicator was updated using new mapping procedures. In the new GIS maps, information is provided on presumed fire return intervals from the period preceding Euroamerican settlement ("presettlement") and for contemporary fire return intervals, and comparisons are made between the two.

The information was compiled from the fire history literature, expert opinion, data collection, and vegetation modeling. The California Department of Forestry and Fire Protection's Fire and Resource Assessment Program fire history database was used to characterize current fire regimes. The vegetation type stratification was based on the 1996 CALVEG map (U.S. Forest Service Remote Sensing Lab) for the four national forests in southern California.

For data limitations in these datasets, see the CALVEG mapping metadata: http://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5347192 and the California fire history database metadata: http://frap.fire.ca.gov/data/frapgismaps/frap_maps.html

Areas where the current fire return interval is more frequent than expected are represented as negative numbers, while areas that have had longer than expected fire return intervals are represented as positive numbers. A condition class of either 1 or -1 indicates that fire return intervals are within the expected range of variability around the mean for a given fire regime. Condition classes 2 or -2 indicate a moderate departure from the expected mean, while condition classes 3 or -3 indicate a high departure from the expected mean. Both moderate and high departures may indicate that altered fire regimes pose a risk to the ecological condition of the site. Type conversion from high fire frequencies (Condition Class -3) or deforestation from wide-spread high severity crown fires (Condition Class 3) are more likely as the absolute value of the condition class rating increases.

The FY17 report will include a more thorough analysis of the departures from the mean fire return intervals and changes in condition classes for lands across the forest and whether there is a trend moving toward or away from the LMP desired condition. Some of the changes in condition class are due to wildlife and fuel treatments, while some are due to lack of wildfire and some of the trends are even due to larger than normal wildfire events. All of this data is currently being reviewed to make any associated conclusions about the trends.

The protocol for tracking tree mortality and its altitudinal distribution across Southern California National Forests is still being refined as of September 2017, and so results will not be available until publication of the fiscal year 2017 monitoring report. However the following Tables illustrate the general trends in mortality by elevation without the altitudinal calibrations necessary to make useful conclusions. The numbers for tree mortality are new mortality found each year and not existing mortality. In Table 4, it appears that the tree mortality has decreased in most elevation bands since 2015 when it was on the rise for almost all of the elevation bands. In Table 5, it appears that when Jeffrey Pine is analyzed alone the same trend can be seen.

Table 2. Tree Mortality by Elevation for 2014-2016 on the San Bernardino National Forest.

Year	Elevation (ft)	# of Trees	Dead Trees Per Acre	BDF Total Acres per 1000 foot Elevation (Forest Land Only)
2014	3000-4000	7	3.85	106572.5671
2014	4000-5000	375	127.10	156721.5431
2014	5000-6000	1,821	182.89	123651.8784
2014	6000-7000	1,934	231.86	105893.5942
2014	7000-8000	1,333	249.60	93998.33906
2014	8000-9000	161	31.20	31467.15664
2014	9000-10000	12	17.25	11890.94578
2014	10000-11000	1	1.44	4127.990307

2015	2000-3000	2	5.67	36285.20761
2015	3000-4000	3,022	73.84	106572.5671
2015	4000-5000	22,845	329.47	156721.5431
2015	5000-6000	59,030	450.36	123651.8784
2015	6000-7000	58,563	377.30	105893.5942
2015	7000-8000	59,345	320.02	93998.33906
2015	8000-9000	18,241	85.73	31467.15664
2015	9000-10000	4	10.07	11890.94578
2015	10000-11000	1	2.16	4127.990307
2016	3000-4000	19	9.00	106572.5671
2016	4000-5000	6,543	127.20	156721.5431
2016	5000-6000	18,643	178.64	123651.8784
2016	6000-7000	21,429	113.79	105893.5942
2016	7000-8000	18,107	163.06	93998.33906
2016	8000-9000	8,071	30.00	31467.15664
2016	9000-10000	381	1.00	11890.94578

Table 3. Acres of Mortality of Jeffrey pine by Elevation over Time on the San Bernardino National Forest.

	Years			
Elevation	**2014**	**2015**	**2016**	**Grand Total**
3000-4000	0.695655081	161.813334	0	162.5089891
4000-5000	2.086966216	1026.774133	190.3667227	1219.227822
5000-6000	87.59563932	881.1201103	1551.108009	2519.823759
6000-7000	180.6505753	2025.936463	840.8521091	3047.439147
7000-8000	206.4398601	2543.594015	2794.64851	5544.682385
8000-9000	27.42457103	225.1583108	627.3547413	879.937623
9000-10000	1.774923214	0.463187398	0.717176633	2.955287245
Grand Total	**506.6681903**	**6864.859553**	**6005.047269**	**13376.57501**

Forest Goal 1.2.1: Fire Regime I, 0 to 35 years, low severity to Condition Class 1

The FY 17 report will include a more thorough analysis of the number of acres treated in montane conifer in each condition class including Condition Class 3, which are most in need of treatment. Treating hazardous fuels in these areas that have missed expected fires is consistent with Goal 1.2.1 of the LMP, which directs the San Bernardino NF to reduce the potential for widespread losses of montane conifer forests caused by severe, extensive, stand replacing fires (LMP, Part 1, pg. 22).

The San Bernardino NF believes we have made progress toward increasing the percentage of montane conifer forests in Condition Class 1, and the FY17 report will include reported fuels reduction activities that have occurred from fiscal year 2008 through fiscal year 2016, in montane conifer forests for each Condition Class.

Forest Goal 1.2.2: Maintain or increase percent of chaparral and coastal sage scrub in condition class 1 (Fire Regime IV)

The FY 17 report will include a more thorough analysis of the number of acres of the forest land area at moderate to high risk of type conversion from excessively frequent fires (i.e., in condition classes -2 and -3) compared to the baseline. Vegetation treatments in condition class -2 or -3 move the area away from the desired condition by adding another burn or disturbance to a location that has already burned too frequently. These concerns primarily apply to Fire Regime IV, which includes mostly chaparral and coastal sage scrub vegetation types. The FY 17 report will also include a more thorough analysis of the number of acres treated in Fire Regime IV, for each condition class.

Some treatments occur in stand with a condition classes -1 or 1 meaning that they were within the natural range of variability expected for this vegetation type and are treated primarily for community defense against wildfire in the wildland/urban interface rather than to move them toward a desired condition class. Areas treated in condition classes -2 and -3, which represent areas that have experienced fire or disturbance more frequently than would be naturally expected, are treated because they are found mainly in areas that comprise wildland/urban interface defense or threat zones. The FY 17 report will also include a more thorough analysis of the fuels reduction activities that have occurred from fiscal year 2008 through fiscal year 2016, in each condition class.

Another measure of effective protection of chaparral and coastal sage scrub ecosystems are fire suppression efforts. For the long term protection of overly burned ecosystems, effective fire suppression is essential.

Aerial detection surveys for tree mortality on the San Bernardino National Forest are conducted annually. An overview of these surveys, as well as maps may be found at:
http://www.fs.usda.gov/detail/r5/forest-grasslandhealth/?cid=fsbdev3_046696

Widespread oak tree mortality is occurring on federal, state, private, and Native American lands in San Diego and Riverside Counties. Multiple agencies and researchers have discovered that dead and dying oaks were infested with the gold-spotted oak borer (*Agrilus coxalis)*. These agencies and organizations are working together in the research, education, and outreach efforts regarding this pest. Information on the gold-spotted oak borer may be found at: http://www.gsob.org.

Forest Goal 1.2.3: Long fire-free intervals in Fire Regime V

These habitats exist where fire is naturally uncommon, such as in stands of bigcone Douglas fir.

Forest Vegetation and Health Monitoring

The Forest Service Remote Sensing Lab provides inventories of vegetation resources in an ecological framework for determining changes, causes, and trends to vegetation structure, health, biomass, volume, growth, mortality, condition, and extent. For details of the vegetation monitoring section, see: http://www.fs.fed.us/r5/rsl/projects/.

Forest Goal 2.1 Invasive Species
Acres or stream miles occupied by invasive species
The Forest has accomplished 67.7 acres of noxious weeds treatment in FY 16. This accomplishment will be used as the annual indicator of progress toward the desired condition and will be represented in current and future trend analysis reports.

The Forest does not receive a level of funding sufficient to conduct a comprehensive inventory, and therefore we are unable to identify a trend based on change from total inventoried acres. Survey data is entered into the NRIS corporate database and acres treated are recorded in the FACTS database. A more thorough analysis of reported activities that have occurred from fiscal year 2008 through fiscal year 2016 will be included in the FY17 report.

Forest Goal 3.1
Visitor Satisfaction from NVUM (National Visitor Use Monitoring)
Annual indicators are recreation facilities managed to standard including natural resource protection as described in Forest Goal 3.1. Meaningful Measures provides a framework for measuring this but the linkage to resource protection is not as clear. Implementation and effectiveness monitoring of resource protection actions required by Standards S34 and S50 (including Appendix D) help to measure the resource protection element of this goal.

The Forest has accomplished 67 recreation sites managed to standard in the general forest areas and 566 recreation special use authorizations administered to standard in FY 16. This accomplishment will be used as the annual indicator of progress toward the desired condition and will be represented in current and future trend analysis reports. The FY 16 numbers are an increase in accomplishments from FY 15 and are trending back to the FY 14 accomplishments reported. The forest also accomplished 119 land use authorizations administered to standard in FY 16 which is an increase from FY 15 and back to numbers reported in FY 14.

Annual indicators are recreation facilities managed to standard including natural resource protection as described in Goal 3.1. Long-term indicators are visitor use trends by activity and overall satisfaction from the National Visitor Use Monitoring ("NVUM") survey. The agency's national target for this measure is 85% and overall nationally 95 percent of visitors were satisfied with their overall experiences during their visits to National Forests and Grasslands as of 2014. The current report summarized data which were collected in 2014 on the San Bernardino National Forest. Approximately 89 percent of respondents were satisfied with developed sites on the San Bernardino NF; 91 percent were satisfied with access; 80 percent were satisfied with services; and 99 percent were satisfied with their perception of safety when they were recreating on the San Bernardino NF. These 2014 values are higher than those determined in 2009 and all meet the national target compared to some of the 2009 ratings that did not meet that target. The 2009 and 2014 reports are available online at: http://www.fs.fed.us/recreation/programs/nvum/.

Results indicate that San Bernardino NF visitation has decreased since 2009, with approximately 2,832 (x1,000) visits in 2009 relative to 2,221 (x1,000) in 2014. Reasons for this decrease in visitation are unknown at this time. The report is available at the above address.

Wilderness Stewardship Performance is a framework used to measure Forest Service efforts to meet its primary responsibility under the Wilderness Act: to preserve Wilderness character. Wilderness management actions on the San Bernardino NF during fiscal year 2016 included 6 miles of trail maintained to standard and installed 4 new signs in the San Jacinto Wilderness; and maintained to standard 3.5 miles of trail in the Santa Rosa Wilderness. The WSP scores of the San Bernardino NF Wilderness areas for 2015 and 2016 reflect the 10 core elements of wilderness condition. Each element has a 10 point score maximum with a combined maximum score of 100. Scores over 60 are considered managed to standard. In 2016 there was no measurable improvement in the overall wilderness area score. This scoring system differs from the system used in previous monitoring reports and therefore a trend cannot be considered, however visitor satisfaction on the San Bernardino NF and Wilderness condition is improving consistently.

Forest Goals 4.1a and 4.1b: Energy and minerals production

In fiscal year 2016, the Forest monitored the operation of the Omya and Butterfield quarries as well as Mitsubishi cement quarry.

Based on projects and activities that have been analyzed and authorized via the National Environmental Policy Act process, the San Bernardino NF continues to meet the intent of both these goals.

Forest Goal 5.1 Watershed Condition

Watersheds are integral parts of broader ecosystems that can be viewed and evaluated at a variety of spatial scales.

Watershed condition is the state of the physical and biological characteristics and processes within a watershed that affect soil and hydrologic functions supporting aquatic ecosystems.

The Forest Service Manual (FSM) uses three classes to describe watershed condition (USDA Forest Service 2004a, FSM 2521.1):

- Class 1 watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- Class 2 watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- Class 3 watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

Using a comprehensive set of 12 indicators that are surrogate variables representing the underlying ecological, hydrological, and geomorphic functions and processes that affect watershed condition, a watershed condition assessment is conducted describing watershed condition in terms of these three discrete classes that reflect the level of watershed health. Primary emphasis is placed on indicators that directly or indirectly impact soil and hydrologic functions and riparian and aquatic ecosystems that Forest Service management activities can influence.

Is the forest making progress toward sustaining Class 1 watershed conditions while reducing the number of Condition Class 2 and 3 watersheds?

Table 4 below indicates an improvement in the watershed condition with the number of watersheds with an increase in the number of watersheds being rated as Class 1 as compared to a decrease in the number of watersheds being rated as Class 2 and Class 3.

Table 4. A comparison of watershed condition classification between FY2011 and FY2016.

Watershed Condition Classification	FY 2011	FY 2016	Change (%)
Class 1 (Functioning Properly)	14	17	+21
Class 2 (Functioning at Risk)	41	39	-5
Class 3 (Impaired Function)	13	12	-8

The protocol for tracking streamflows across Southern California National Forests is still being refined as of September 2017. As a starting point, the Figures and Graphs below show the reults for Deep Creek, a USGS gaged stream on the San Bernardino NF. Other gaged streams will be analyzed in future reports. Figure 6 represents the monthly mean flow for Deep Creek for the 11 year period from FY2006 through FY2016. Of particular interest is how this figure correlates well to the last five years of drought that has occurred throughout California.

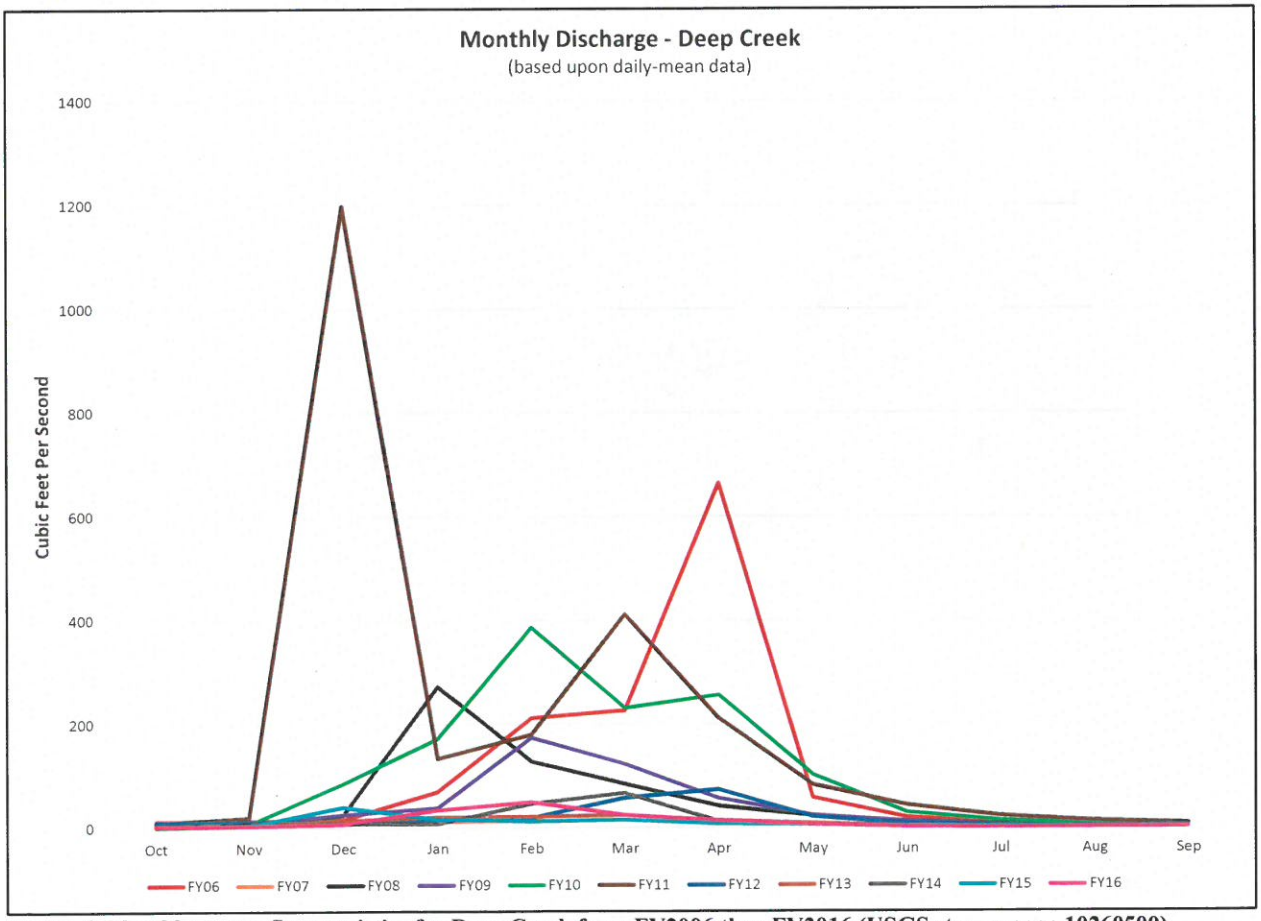


Figure 6. Monthly streamflow statistics for Deep Creek from FY2006 thru FY2016 (USGS stream gage 10260500).

Figure 7 represents the annual peak flow for Deep Creek for the 11 year period from FY2006 through FY2016. The annual peak flow is the largest recorded flood flow within the water year, which is the time period as the fiscal year. Similar to the monthly mean flows, you also see the largest recorded peak flows between FY2006 and FY2011.

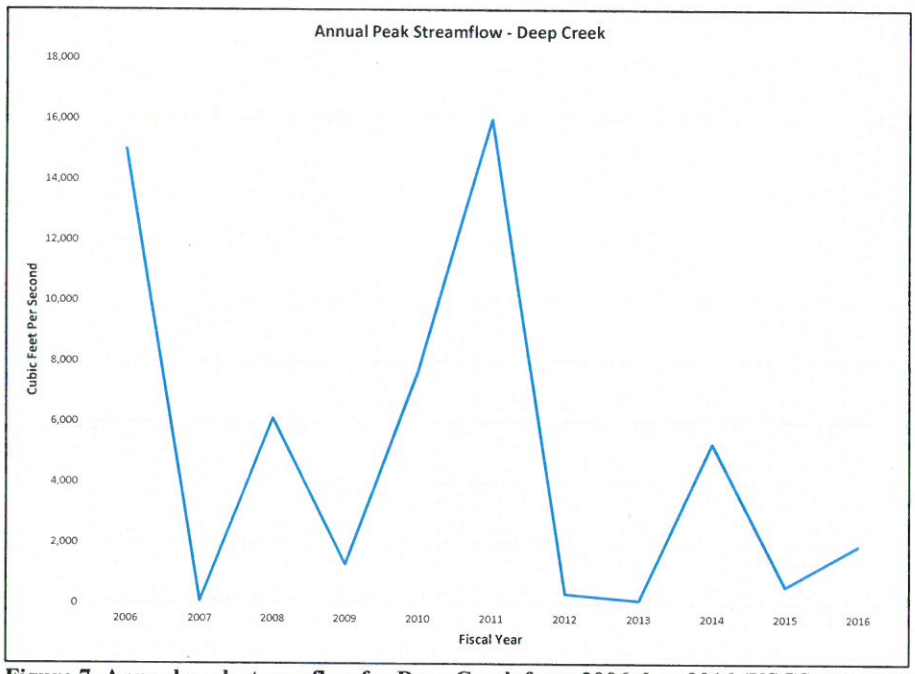
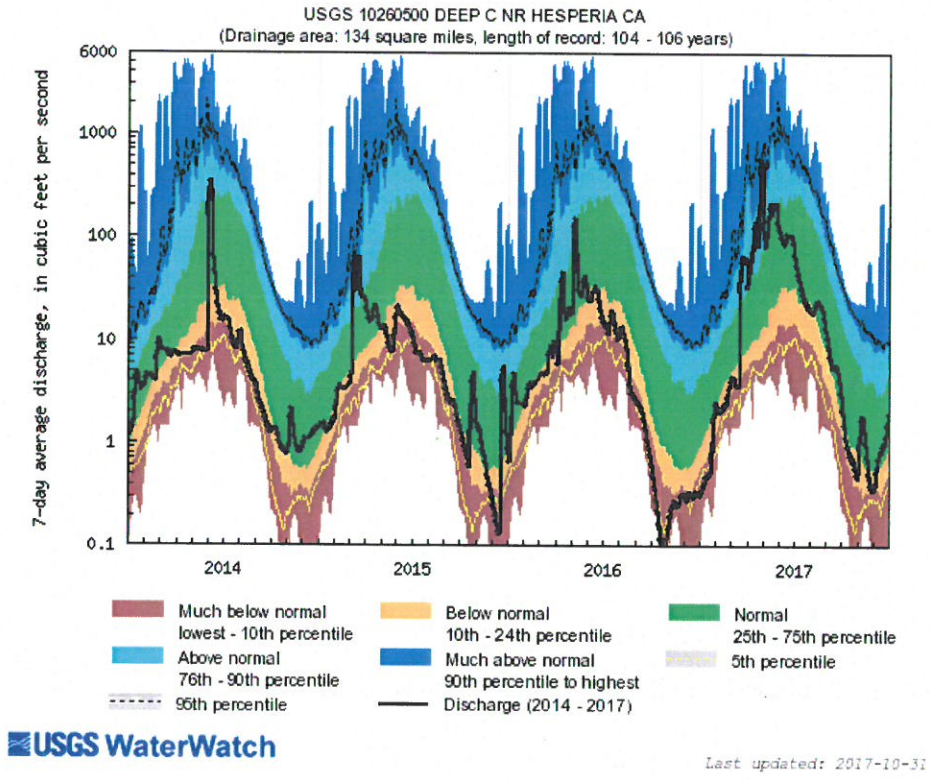
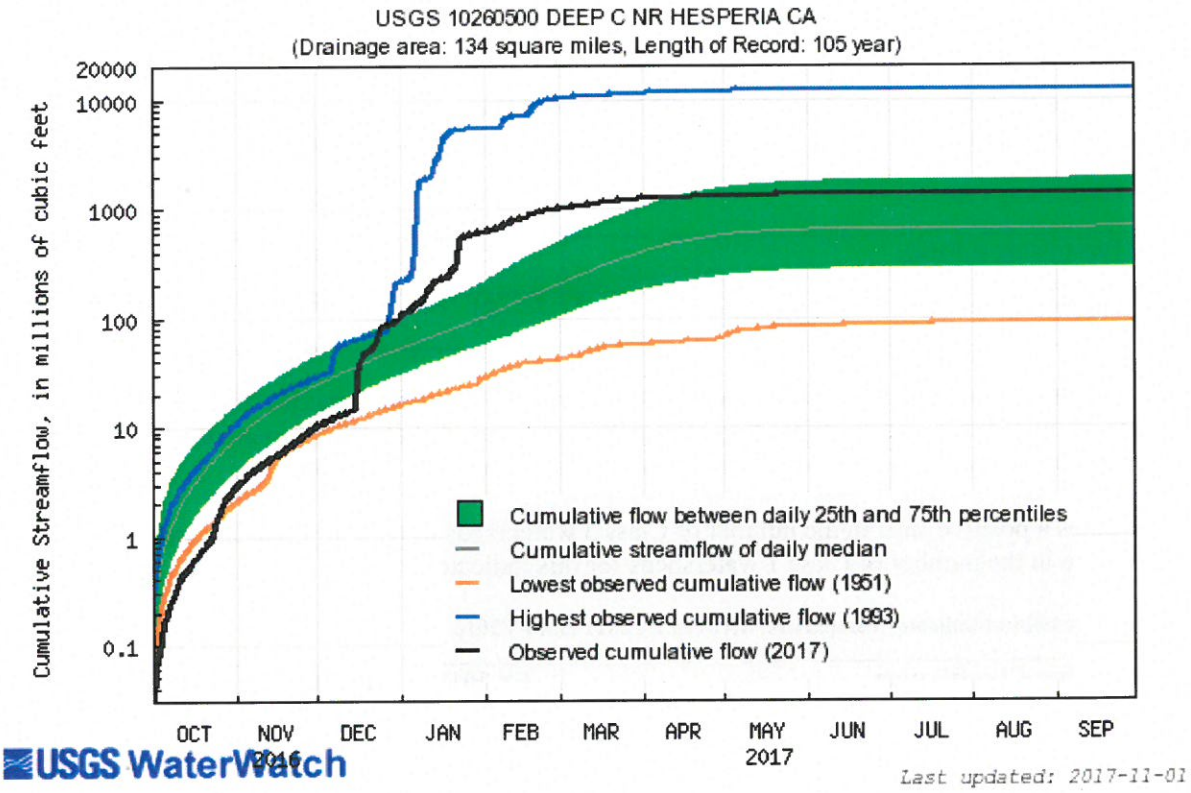


Figure 7. Annual peak streamflow for Deep Creek from 2006 thru 2016 (USGS stream gage 10260500).



Graph 1. USGS Average Discharge Rates for 2014 thru 2017 in Deep Creek.

Graph 1 above shows how the current year's rainfall deviated from the past few years with well described drought conditions. The end of the 2016 water year was marked with an incredibly low discharge rate and this continued throughout the beginning of the 2017 water year. However rainfall in 2017 was quite high and boosted the discharge rate within the normal range and it has largely been sustained throughout the duration of the year.



Graph 2. Current Cumulative Streamflow Water Year 2017 in Deep Creek.

Graph 2 above shows that the current water year (black line) started off lower than normal and was slightly lower than the lowest observed cumulative flows in 1951. In December, streamflow was boosted into the 25th to 75th percentile and exceeded this interval and approached some of the highest flows in Jan-March.

Forest Goal 5.2 Riparian Condition

As previously discussed, a comprehensive set of 12 indicators representing the underlying ecological, hydrological, and geomorphic functions and processes affecting watershed condition are used to determine watershed health. Primary emphasis is placed on those indicators that directly or indirectly impact soil and hydrologic functions and riparian and aquatic ecosystems that Forest Service management activities can influence. These indicators include water quality, aquatic habitat, aquatic biota, and riparian/wetland vegetation.

Is the forest increasing the proper functioning condition of riparian areas? How do streamflows compare with historical records? Is the forest making progress toward reducing the number of streams with poor water quality or aquatic habitat conditions?

Water quality addresses the expressed alteration of physical, biological, or chemical impacts to water quality and uses both impaired waters (303(d) listed) and water quality problems (not listed) as its key attributes. Table indicates an increase in the number of Class 1 watersheds as compared to a decrease in the number of Class 2 and 3 watersheds from FY2011 to FY2016. Beginning an FY2017, a focused monitoring effort to collect water quality data on impaired waters (303(d) listed) was begun and preliminary data indicates the possibility of delisting several additional waterbodies.

Table 5. Water quality indicator comparison between FY2011 and FY2016.

Water Quality Classification	FY 2011	FY 2016	Change (%)
Class 1 (Functioning Properly)	23	28	+22
Class 2 (Functioning at Risk)	24	23	-4
Class 3 (Impaired Function)	21	17	-19

Aquatic habitat addresses aquatic habitat condition with respect to habitat fragmentation, large woody debris, and channel shape and function. Key rating attributes include habitat fragmentation (including aquatic organism passage), large woody debris, and channel shape and function.

Table indicates a positive shift in the number of Class 3 watersheds moving to Class 2 watersheds. There was no change in the number of Class 1 watersheds for this indicator.

Table 6. Aquatic habitat indicator comparison between FY2011 and FY2016.

Aquatic Habitat Classification	FY 2011	FY 2016	Change (%)
Class 1 (Functioning Properly)	14	14	0
Class 2 (Functioning at Risk)	30	31	+3
Class 3 (Impaired Function)	24	23	-4

Aquatic biota addresses the distribution, structure, and density of native and introduced aquatic fauna. Key rating attributes include life from presence, native species, and exotic and/or aquatic invasive species. Similar to

Table above, **Table** indicates a positive shift in the number of Class 3 watersheds moving to Class 2 watersheds. There was no change in the number of Class 1 watersheds for this indicator.

Table 7. Aquatic biota indicator comparison between FY2011 and FY2016.

Aquatic Biota Classification	FY 2011	FY 2016	Change (%)
Class 1 (Functioning Properly)	1	1	0
Class 2 (Functioning at Risk)	58	60	+3
Class 3 (Impaired Function)	9	7	-22

Riparian/wetland vegetation addresses the function and condition of native riparian vegetation along streams, water bodies, and wetlands. The key rating attribute is vegetation condition. **Table** indicates a negative downward trend in the number of Class 1 watersheds from FY2011 to FY2016 and resulting increase in the number of Class 2 and 3 watersheds. Possible causes for this downward trend may include recent drought, increased wildfire activity, above recommended road density levels and locations, recreation locations, and other special uses.

Table 8. Riparian/wetland vegetation indicator comparison between FY2011 and FY2016.

Riparian/Wetland Vegetation Classification	FY 2011	FY 2016	Change (%)
Class 1 (Functioning Properly)	23	18	-22
Class 2 (Functioning at Risk)	43	46	+7
Class 3 (Impaired Function)	2	4	+100

In fiscal year 2016, the San Bernardino National Forest continued to implement essential projects taken from its Watershed Restoration Action Plans that were developed in FY2011 for its two priority watersheds.

The San Bernardino National Forest's Best Management Practices Evaluation Program report is included in this report and has been sent to the Regional Water Quality Control Boards. We continue to look for watershed restoration projects that will improve watershed condition classes.

Forest Goal 6.1: Rangeland condition

Annual compliance monitoring showed allotments were within forage utilization standards. No long term monitoring plots were read in 2016. Based on period monitoring, a majority of allotments or pastures remain in good condition.

There are currently two active allotments within the San Jacinto Ranger District of the San Bernardino National Forest. The Rouse allotment is currently inactive. The Wellman and Garner allotments are active. Rattlesnake allotment is shared with BLM and is on the Mountaintop Ranger District and is active. All are currently administered to standard.

Garner allotment is currently undergoing NEPA analysis. Public scoping began in 2016. The Rouse Allotment is authorized for 14 head and the Wellman Allotment is authorized for 50 head. Both Garner and Wellman allotments operate below permitted numbers, as a mutual agreement with the forest, due to current drought conditions.

A more thorough analysis of rangeland monitoring data will be included in the FY17 report. In 2016, the Santa Ana Regional Water Quality Control Board passed Order R8-2016-0003, which exempted from its provisions Forest Service grazing allotments that meet certain criteria. Data continues to be collected for annual monitoring of these allotments.

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Forest Goal 6.2: Biological resource condition

There is a biological resource condition section included in this report.

A protocol was developed to evaluate the extent of type conversion from shrublands to annual grasslandsacross the Southern California National Forests. This is the first report to address this monitoring question.

We determined the number of acres of habitat type conversion from shrubland to annual grassland. The Wieslander Vegetation Type Map (VTM) was used as an historic baseline of shrubland vegetation type. This vegetation map was created from data collected in the 1930s. The VTM was spatially compared to a 2011 model of herbaceous ground cover. Any area within the VTM shrubland vegetation type that was greater than 50% herbaceous cover was considered type converted. The herbaceous data used was from 2010 and the fires are masked for 5 years, from 2005 to 2010. A more thorough analysis using this protocol will be done in the FY 17 report.

Wieslander's VTM contains 305,767 acres of shrubland within the land area owned by the BDF in 2016. Of this, 66,590 acres, or 22%, have been type converted to annual grassland compared to the 2011 model.

Forest Goal 7.1
Built Area by Land Use Zone

The Forest has accomplished 0 or no acres of land ownership adjusted in FY 15. This accomplishment will be used as the annual indicator of progress toward the desired condition and will be represented in future trend analysis reports.

All other accomplishments and Forest Goals are considered long term indicators for monitoring and will be reported and analyzed as a part of future trend analysis reports.

As of fiscal year 2016, land ownership complexity has been reduced relative to 2006 due to land exchanges and transfers. Between fiscal years 2006 and 2016, the San Bernardino NF conducted NEPA analyses to determine how to implement changes to unauthorized routes. Planning is complete for the decommissioning of unauthorized routes and is being implemented in stages each year. A wide variety of

special uses are authorized across the San Bernardino NF, and the number of authorizations administered to standard increased from 2015 to 2016 from 94 to 119.

The FY 17 report will include a more thorough analysis of the number of acres of land acquired using the most current land ownership layer for updates and comparing to the baseline map. This map is currently being updated with previous fiscal year land adjustments.

Part 2 Monitoring

Monitoring identified in Part 2 of the LMP is focused on program implementation including inventory activities. The Forest currently uses performance indicators for tracking program accomplishments. The current system tracks performance measures linked to the National Strategic Plan and reports accomplishments through a national reporting system. A monitoring summary of accomplishments can be seen in Table 9.

Table 9: Part 2 Monitoring Summary

Indicators	FY 2015 Level
Acres of Terrestrial Habitat Enhanced	2330
Miles of Aquatic Habitat Enhanced	27.6
Acres of Noxious Weeds Treated	67
Acres of Forest Vegetation Established or Improved	343
Acres of Watershed Improved	1,336
Acres of Land Ownership Adjusted	0
Heritage Program Managed to Standard	1
Presence of a Heritage Program Plan	1
Acres of Section 110 Inventory of NFS lands	250
Evaluations of National Register Eligibility	0
Heritage Priority Assessments	0
Cultural Resource Assets Stewarded	3
Heritage Public or Research Opportunities Provided	7
Heritage Volunteer Hours Contributed	975
Recreation Special Use Authorizations Administered to Standard	566
Recreation Sites Managed to Standard (General Forest Areas)	67
Land Use Authorizations Administered to Standard	119
Number of Mineral Operations Administered to Standard	0
Acres of Allotments Administered to Standard	16,000
Acres of Hazardous Fuel Reduction	4343
Miles of Passenger Car Roads Maintained to Objective Maintenance Level	74.6
Miles of High Clearance & Back Country Roads Maintained to Objective Maintenance Level	88.3
Miles of Road Decommissioned	0
Miles of Trail Operated and Maintained to Standard	67

Carbonate Endemic Plant Habitat Management

Outcome Evaluation Question

Is habitat being conserved through implementation of the Carbonate Habitat Management Strategy?

Reference Values

The following actions from the Carbonate Habitat Management Strategy Part IV (Administration) were taken during FY2016.

13(a)(iii): The Habitat Reserve was managed for conservation of carbonate Plants and consistent public uses, as provided under section 9(f) of the CHMS. This management included use, maintenance and patrol of the Forest Transportation System, maintenance of fencing and signage, and administration of special use authorizations.

Conclusions

Habitat is being conserved through implementation of the Carbonate Habitat Management Strategy. Management activities associated with carbonate habitat during FY17 made limited gains toward the desired conditions of protecting the habitat reserve, avoiding destruction of critical habitat, recovering listed species, and restoring carbonate habitat.

Recommendations

- Continue ongoing work towards the LMP recommended establishment of the Blackhawk RNA.
- Work on taking title to Mitsubishi Cement Co. (MCC) 17P and 18P via donation by MCC.
- Continue work on requesting mineral withdrawal to establish initial habitat reserve for the Furnace Unit of the Carbonate Habitat Management Area, and implement mitigation measures for Omya and Mitsubishi.

Pebble Plain Plant Habitat Management

Outcome Evaluation Questions

Is habitat being conserved through implementation of conservation strategies?

Are resource conditions indicating a stable or upward trend toward meeting desired conditions?

Reference Values

The following actions from the Pebble Plain Habitat Management Guide were taken during FY2016.

D-1 (5.): Coordination continued with Southern California Edison and Bear Valley Electric Service to avoid and minimize impacts associated with operation and maintenance of their electrical transmission lines through pebble plain habitat.

D-1 (6.): Patrols continued to monitor sensitive areas, record impacts, and maintain fences, signs and gates. Barbed wire continued to be replaced with smooth wire. Additional smooth wire fencing and signage was constructed in strategic locations.

D-1 (9.): The District continued to manage mining-related activities in and around pebble plain habitat. The strategy is to work with claimholders to prepare Notices of Intent that avoid impacts to pebble plain habitat by design.

D-1 (12.): The effort to identify, close and restore unauthorized routes in pebble plain habitat was folded into the OHV Route Designation Project. A final decision on this action was rendered in February 2009 and implementation is ongoing.

Conclusions

Habitat is being conserved through implementation of conservation strategies, and resource conditions indicate a stable trend relative to desired conditions.

Management activities associated with pebble plains during FY15 made limited gains toward the desired conditions of conserving habitat, minimizing incompatible uses, restoring habitat, and recovery of listed species.

Recommendations

- Continue collaborative efforts with the Sawmill Pebble Plain Working Group to provide effective management of the Sawmill pebble plain complex in a multi-jurisdictional context.
- Continue ongoing work towards the LMP recommended establishment of the Arrastre and Wildhorse Research Natural Areas (RNAs).
- Look for additional opportunities to improve pebble plain habitat through the integration of functional programs and through partnerships.
- Repair and expand resource fencing and signage in high use areas. Continue to patrol these areas to monitor effectives of protection measures and to detect additional protections needed.

Biological Resource Condition

Monitoring

In fiscal year 2015, the San Bernardino National Forest reported to U.S. Fish & Wildlife Service (FWS) monitoring items from roughly 8 different LMP Ongoing Activities Biological Opinions (BO) for threatened and endangered (T&E) wildlife species and plant species. The following is a list of BOs with monitoring requirements performed in FY2016:

- Biological and Conference Opinions for Various Ongoing Activities on the San Bernardino National Forest with Effects to Eight Riparian Species, San Bernardino National Forest, California December 6, 2012.
- Letter of Concurrence - Request for Informal Section 7 Consultation regarding Ongoing Activities that Affect coastal California gnatcatcher in the San Bernardino National Forest, San Bernardino County, California. April 12, 2013.
- Formal Section 7 Consultation for Ongoing Activities that Affect Quino Checkerspot Butterfly on the San Bernardino National Forest, San Jacinto Ranger District, Riverside County, California. May 3, 2013.
- Formal Section 7 Consultation for Ongoing Activities that Affect Desert Tortoise on the San Bernardino National Forest, Front Country and Mountaintop Ranger Districts, San Bernardino County, California. May 10, 2013
- Letter of Concurrence - Section 7 Consultation for Forest Service On-going Activities that May Affect Peninsular Bighorn Sheep in the San Bernardino National Forest, San Jacinto Ranger District, Riverside County, California. May 13, 2013.
- Biological Opinion for Use and Maintenance of the Fuller Mill Creek Picnic Area and Dark Canyon Campground, San Bernardino National Forest, California, August 8, 2013.

- Biological/Conferencing Opinions on Four Grazing Allotments on the San Bernardino National Forest. 2001.
- Biological Assessment of Ongoing Activities that affect Twelve Mountain Plant Species on the San Bernardino National Forest, Mountaintop Ranger District, San Bernardino County, California.
- Programmatic Biological Opinion for the Revised Land Management Plans for the Four Southern California National Forests, California. FWS-05B0017-05F0009-R002, September 30, 2013.

Overview of all on-going activities monitoring:

- No known incidental take for TE species in 2016 from covered LMP on-going activities.
- Garner Grazing Allotment activities did continue in 2016, grazing occurred at lower numbers than historic within Quino checkerspot butterfly habitat.

Reports on individual species:

Southwestern willow flycatcher (SWWF)

Habitat suitability surveys and two-year protocol surveys were conducted on the San Jacinto Ranger District by Tanner Environmental Services. Suitable habitat was identified in four locations. No SWWF or any other Empidonax species were observed during the 2015-2016 surveys. Four brown-headed cowbirds were observed on the final visit to the Spillway Canyon area. Surveys were conducted by Jason Berkeley, FWS permitted SWWF surveyor.

Protocol level SWWF surveys were conducted at Jenk's Lake, Cold Creek, the west fork of City Creek and associated tributaries, and Mill Creek for project related NEPA. Surveys were conducted by U.S. Fish and Wildlife Service (FWS) permitted SWWF surveyors Brian Lohstroh, staff from the San Diego Natural History Museum, and Jason Berkeley. No nesting SWWF were observed.

The MTRD worked with the BLM to improve OHV management along common boundaries. A pipe and cable fence plan in the upland was approved and construction will begin in November 2016 to restrict off route use into the Warm Springs area of the Deep Creek IRA. The Forest also acquired funding and has hired a full time OHV Forest Protection Officer to improve OHV management of the boundary area. While other actions are needed, these two actions are expected to benefit ARTO and SWWF habitat at Warm Springs.

Emergency consultation was conducted for suppression-related effects to SWWF for the Pilot Fire and Blue Cut Fire in August-September 2016.

The use of aerial fire retardant misapplications reported for Pilot and Blue Cut Fires were entered into the Wildland Fire Chemicals Misapplication Reporting Database (WFCMRD) (https://www.fs.fed.us/fire/retardant); no impacts were expected.

Least Bell's Vireo (LBVI)

Protocol level LBVI surveys were conducted at Lost Lake for on-going activities, and at Mill Creek for a project related NEPA. Surveys were conducted by U.S. Fish and Wildlife Service (FWS) permitted SWWF surveyors Jason Berkley and staff from the San Diego Natural History Museum. A male LBVI was observed in Mill Creek building a nest. No reproduction was observed.

Emergency consultation was conducted for suppression-related effects to LBVI for the Blue Cut Fire in August-September 2016. The use of aerial fire retardant misapplications reported for Pilot and Blue Cut Fires were entered in the WFCMR Database; no impacts were expected.

Mountain yellow-legged frog (MYLF) –

David Austin and Gerralaine Alcordo from the SBNF Supervisors Office and LaReina VanSant and Ann Bowers from the SBNF San Jacinto Ranger District participated in the May 2016 release of captive-bred juvenile frogs into the North Fork of the San Jacinto River in May 2016. Two more releases of tadpoles and juveniles were conducted at the same location in July and September of 2016. Kim Boss participated in the release of tadpoles in City Creek in September, 2016. K. Boss, A. Bowers, and L. Van Sant attended the annual MYLF Working Group meeting in Carlsbad on November 8, 2016. K. Boss successfully managed four agreements with our partners in the MYLF Working Group that facilitate funding for the captive breeding and translocation program in FY2016.

CA Dept Fish and Wildlife conducted trout removal in Tahquitz Creek, San Jacinto Wilderness, SBNF San Jacinto Ranger District. Thirteen trout were removed from Tahquitz Creek in November and December of 2016.

USGS conducted third-year fire effects monitoring and post-fire surveys for MYLF in the Willow/Tahquitz Creek footprint of the Mountain Fire. No frogs were detected in all 3 years of post-fire surveys. Habitat condition is improving for MYLF due to gradual flushing of sediments caused by the fire/storm event.

MYLF Mortality on the San Jacinto RD –

MYLF Mortality occurred on the San Jacinto RD due to environmental causes and not due to on-going activities.

Thirteen dead juvenile MYLF were collected in Dark Canyon on seven separate occasions between August 22nd and September 17th 2016. Each collection was reported to the Service and specimens were sent to the San Diego Institute for Conservation Research for necropsy. Necropsy revealed that the mortality was not related to recreational use as mentioned above.

Desert tortoise (DETO) –

No incidental take of desert tortoise was documented in CY2016 anywhere on the SBNF.

Surveys were conducted during implementation activities of the Baldy Mesa OHV trail project along fence line installation. No DETO or their sign were observed. No incidental take was observed during implementation of this project.

Emergency consultation was conducted for suppression-related effects to desert tortoise for the Blue Cut and Pilot Fires in August/September 2016. Surveys were conducted on 3N21/3N24 for BAER treatment activities along the road. No DETO or their sign were detected and no incidental take was observed during implementation.

Unarmored three-spined stickleback (UTS) –

No habitat enhancement work conducted in 2016. Monitoring of the two sites on National Forest lands (Juniper Springs and Sugarloaf Pond) was conducted. Some incidental monitoring of Shay Pond (private land) was conducted and FWS was notified when low water levels and vegetation encroachment was observed.

Santa Ana sucker (SAS) –

D. Austin and A. Mendoza attended several Upper Santa Ana River HCP meetings and SAS Translocation Plan meetings with USFWS, CDFW, USGS and San Bernardino County Water District. The FS provided input to the draft SAS Translocation Plan and provided information to Kai Palescan, USFWS, for their NEPA process. Attended quarterly western Riverside County Aquatics meeting at Riverside Corona Resource Conservation District with CDFW/FWS/SB Co/Riv Co.

Public Outreach – Fisheries Resource Volunteer Corps: Riparian education and conservation

A total of 30 individuals from the Fisheries Resource Volunteer Corps contributed approximately 3,563hours of labor on the SBNF in 2016. Most of those hours reflect patrols on Bear Creek, Deep Creek, Lytle Creek, Mill Creek and Santa Ana River. Their efforts included garbage removal, graffiti removal, recreational dam removal and public outreach. The emphasis of the public outreach efforts was to inform visitors about the special status fish in the creeks on national forest and the need for visitors to practice good stream etiquette. Visitors were reminded to properly dispose of all garbage and were encouraged not to construct dams in the stream. Other projects included Trout in the Classroom (20 programs) school projects/program. They also conducted stream surveys on Bear Creek, Deep Creek and Santa Ana River to evaluate stream habitat conditions for fish and amphibians.

Quino checkerspot butterfly (QCB) -

Conducted year 3 (of 3) photo point monitoring of aerial fire retardant areas established for the Mountain Fire (separate AFR report).

The San Jacinto RD continued to remove noxious weeds (bull thistle) in the Johnson Meadow and Garner Valley areas to improve QCB habitat conditions.

No broadcast burns conducted in 2016 on SJRD.

Impacts to Quino from grazing may have decreased due to a voluntary reduction of head in the Garner allotment from 65 in 2015 to 38 in the 2016 grazing season. Rouse Allotment has not been grazed since 2013 – permittee Leonard Hale died in 2014 and the allotment has been in non-use status from 2014-2016.

Peninsular bighorn sheep (PBS) -

David Austin attended the Coachella Valley Conservation Committee and Resource Management Oversight Committee meetings to coordinate with FWS/CDFW/BLM/NPS and CVAG. New Santa Rosa San Jacinto Mountains National Monument Science Plan study being started by Dr. Cameron Burrows/UCR; D. Austin is the FS representative to this group; with the main question to look at is recreational activities impacts on habitat/species.

Dunn Road (FS administrative use only) was monitored for unauthorized OHV use by L. Van Sant in 2016. A trail by-passing the locked gate by way of a cut fence is still in need of repair.

D.Austin also represented the USFS at the western Big horn Sheep Summit on Dec 2, 2016 at the CFDW offices in Ontario. This summit was attended by members of the BLM, CDFW, and Wild Sheep Foundation and Society for the Conservation of Bighorn Sheep. Main topics was surveys conducted by CDFW in 2016 and the need for wildlife drinker maintenance. The 4 Province forests are working on a wildlife drinker inventory form and cooperative agreements with various groups to start inventory, monitor, and maintain wildlife drinkers in bighorn sheep habitat across southern California in CY 2017.

Palm Canyon tamarisk removal, monitoring and re-treatment of re-sprouts if necessary has occurred each Sept/Oct since 2013; removal of mature and seedling tamarisks in 5 to 20 acres of infested areas within the canyon each year is helping to restore desert riparian habitat in sheep essential habitat area.

Arroyo toad – (ARTO) -

The Forest/MTRD continue to work with the Army Corps of Engineers on restricting access to Deep Creek through the Mojave Forks Dam tunnel. ACOE maintains barriers in the tunnel in order to prevent illegal OHV use in the SBNF side of the dam (in Deep Creek's occupied habitat). In 2016, the barriers appeared to have higher levels of effectiveness and some of the habitat has recovered. . SBNF law enforcement patrols have issued citations throughout the year.

In 2016, Bautista canyon/Hixon trail HV crossing was maintained and additional rock placed.

On the MTRD, OHV trail crossings of Holcomb Creek and Deep Creek in suitable habitat were maintained and hardened in CY 2016.

Occupied sites on the MTRD were monitored. ARTOs were observed in Deep Creek at the Mojave Forks dam.

The MTRD worked with the BLM to improve OHV management along common boundaries. A pipe and cable fence plan in the upland was approved and construction will begin in November 2016 to restrict off route use into the Warm Springs area of the Deep Creek IRA. The Forest also acquired funding and has hired a full time OHV Forest Protection Officer to improve OHV management of the boundary area. While other actions are needed, these two actions are expected to benefit ARTO and SWWF habitat at Warm Springs.

Occupied habitat in Little Horsethief and Cajon Creeks on the FCRD were monitored.

Emergency consultation with the FWS was conducted for suppression-related effects to arroyo toad for the Blue Cut and Pilot Fires in August/September 2016. The use of aerial fire retardant misapplications reported for Horn, Pilot and Blue Cut Fires were entered into the WFCMR database; no impacts were expected.

San Bernardino kangaroo rat (SBKR) -

No incidental take of SBKR was documented in 2016 on the SBNF.

Emergency consultation was conducted with the FWS for suppression-related effects to SBKR for the Blue Cut in August/September 2016. The use of aerial fire retardant misapplications reported for the Blue Cut Fire were entered into the Wildland Fire Chemicals Misapplication Reporting database; no impacts were expected.

2009 Grazing BO monitoring:

The FS met at the beginning of the 2016 grazing season with Garner and Wellman permittees and notified them of their responsibility to protect threatened and endangered species and to notify the Forest Service before undertaking any maintenance actions or changes in livestock use in the riparian areas. The Rouse allotment was not grazed in 2016 because the permittee died in 2014 and the estate is in probate.

Fobes Canyon = Riparian habitat in the Fobes Canyon area was completely burned over during the Mountain Fire in 2013 and is currently unsuitable for the SWFL. The exclusion fence was severely damaged by both the fire and subsequent storm flood damage and is no longer functional. The Forest conducted a site visit with the Palm Springs Fish and Wildlife Office (PSFWO) to the area in April 2015. The Service agreed to lift the fencing requirement for this habitat imposed by the Biological/Conference Opinions on Four Grazing Allotments on the San Bernardino National Forest, California (FWS-SB-1464.2). Willow browsing by cattle was monitored in Fobes Canyon in 2015/2016. Little browsing activity was observed.

Grazing NEPA Status - NEPA on the Garner Allotment permit was postponed in 2016. Scoping was started in 2015 and NEPA IDT team developed proposed action and alternatives in 2016. NEPA for Wellman Allotment permit is expected start in FY18 and expected to be completed in 2019. Rouse Allotment was completed in 2013.

SBNF ESA Listed Plant Species:

Nevin barberry - No impacts reported = no known occurrences on Forest.

Slender-horned spine flower - New localities discovered on the SJRD, extending the known elevation range for the species upward. No impacts observed from FS on-going activities.

Impacts from private land occurring due to individual with a bull dozer conducting clearing activities in Cajon and Lytle Creeks have impacted habitat for this species on NFS lands. FS law enforcement has contacted individuals/water districts; FWS - PSFO notified by FS on several occasions of activities occurring. Notifications were made by Deb Nelson to John Taylor and Geary Hund. (Same site as for SBKR above). No new bulldozer damage was noted in 2016, however, new 2- tracks (made by some sort

of 4 wheeled vehicle) were discovered near (but not within) the Cajon Wash population. The fence between the road and the occupied habitat has been cut for several years now.

We have noted in each monitoring report that the Cajon, Bautista Canyon and Cranston populations continue to be increasingly invaded by non-native annual grasses. So far, no treatments have been proposed to address this problem due to the fact that most options would either require NEPA analysis (herbicide treatment), or ground disturbance that would damage the crusts of fragile soils in this habitat. The only remaining relatively un-infested populations are the most recently discovered ones in Baisley and Horse Canyons (tributaries to Bautista Canyon). This is likely due to the remoteness of the sites and little recreational or administrative use of the areas. The Bautista Canyon populations have been impacted by County road crews piling cut brush. They were notified and provided with a map so they can avoid similar impacts in the future.

T/E Meadow Species (San Bernardino bluegrass, slender-pedaled mustard, bird's foot checkerbloom, and California taraxacum); T/E pebble plain species (Bear Valley sandwort, southern mountain buckwheat, ash-gray paintbrush); and, T/E Carbonate Species (Cushenbury milk-vetch, Parish's daisy, Cushenbury buckwheat, Cushenbury Oxytheca, San Bernardino Mountains bladderpod):

No impacts on NFS land were observed in CY2016. Occupied habitat was routinely monitored during CY2016 with protective structures (signs, barriers, fences) maintained/repaired where needed. Mountaintop Plants consultation is still pending (BA submitted in 2012; BO anticipated at unknown date).

Limited Poa surveys were conducted in Johnson Meadow on SJRD to determine habitat suitability.

Update for Biological Opinion for Ongoing Activities that affect Twelve Mountain Plant Species on the San Bernardino National Forest - The SBNF continued to engage the Palm Springs Field Office in discussion/strategy to finish this consultation package in 2018.

Emergency consultations – Pilot fire and Blue Cut Fire – Emergency consultations were conducted for the Pilot Fire on the Mountaintop Ranger Districts and for the Blue Cut Fire on the Front Country Ranger District. Lost Lake, Cajon Wash, and Sheep Canyon southwestern willow flycatcher was burned in the Blue Cut Fire. Desert tortoise habitat was impacted by the Blue Cut Fire in the Baldy Mesa area, along with ground suppression actions within habitat by several cooperating agencies in and adjacent to NFS lands. Arroyo toad and San Bernardino kangaroo rat habitat in Cajon Wash was also impacted by suppression activities and Special Use Permit facilities repairs (power pole replacement).

Off-Highway Vehicle (OHV) Program Monitoring

There are six methods of OHV program monitoring. Each program is described separately with conclusions and recommendations for all methods compiled at the end of this section.

1) OHV Trail Soil Monitoring

During fiscal year 2016, Forest-wide trail condition surveys were conducted on all designated OHV trails (24-50") to assess soil retention and soil loss. During this time, it was determined that all trails were retaining soils at sustainable amounts. OHV trail maintenance in fiscal year 2016 was conducted using a small bulldozer, a front end loader and/or hand tools to remove rock and debris, grade trail tread, increase height of rolling dips, and to clean out over-side drains. The number of water diversion features (rolling dips) remained the same as the prior year. To reduce sedimentation and prevent pooling, six trail crossings were hardened with rock (Hixon, Allesandro, Deep Creek, Coxey, Holcomb and Willow Creeks).

Additional BMPs (Best Management Practices) were utilized to reduce sedimentation off roads by hardening natural drains with rock where metal culverts were not present. In other locations, the dozer operator recaptured sediment and used it in the trail tread. Annual OHV trail photo monitoring was conducted at five locations. These combined actions contributed to overall soil stabilization along trails.

Road maintenance was completed under contract on Forest green sticker roads 4S10 and 5S09 utilizing ~$30,000 of OHV grant Ground Operations funds. Maintenance included blading and reinstalling inlets and starters and flumes. OHV funds for road maintenance were also secured in 2016 to repair large washouts and gullies on green sticker road 3N16 on the Mountaintop District. This work will be completed under contract in 2017.

2) Habitat Management Plan (HMP) Monitoring

Habitat protection monitoring conducted under the Habitat Management Plan (HMP) is funded in partnership with the State of California Off Highway Motor Vehicle Recreation Division (OHMVRD). HMP monitoring was conducted by Forest field staff four times a year using maps and checklists within threatened, endangered and sensitive wildlife and plant habitat. The purpose of the monitoring was to assess and document effects of OHV green sticker route use on habitats and then to schedule protection measure or maintenance needs.

Under the 2016 HMP, 96 locations of sensitive plant and wildlife habitat that intersect OHV routes were monitored. Of the 96 sites, 28 were monitored for wildlife and 68 were monitored for plants. All sites were monitored except when access was precluded due to excessive snow levels, and/or road and fire closures. The HMP required monitoring along 24 trails, 72 routes and trail crossings hardened with rock.

The success criteria and management objectives were achieved at 46 sites (no off trail travel occurred within sensitive habitat) of the 96 sites. Six trail crossings at streams hardened with rock in the spring of 2016. Out of all the riparian crossings, three have formed a pool, at Crab Creek, Mojave River and North Fork of the San Jacinto River, however no oil sheen was noted. A concrete low water crossing was installed in Crab Creek. An assessment will be done at Mojave River and North Fork of the San Jacinto River to determine if these sites should be hardened.

Unauthorized OHV decreased over the last year from 49 breached sites in FY15 to 32 breached sites in FY16. Unauthorized OHV use occurred at 32 of the 96 HMP sites. This decrease may be due in part to lack of access to sites during snow, fire area or road closures. The 32 sites had evidence of single and double tracks from vehicles such as motorcycles, ATV, UTVs, jeeps and other vehicles. It is important to note that not all of these unauthorized routes were necessarily new this year but that they exist on the

landscape and are in need of management and restoration. Off trail impacts include damage to restoration sites, the creation of new trails and trail networks, hill climbs, trail widening, vegetation damage and vegetation mortality, and unauthorized use of motorcycles in the creek.

HMP sites were negatively affected by other activities than unauthorized OHV use. Other unauthorized and illegal use included sign vandalism, cut/vandalized fences, target shooting and associated debris, wood cutting, camp fires, trash, dump sites, and graffiti on rocks, signs and mines. These unauthorized activities continue to affect the Habitat Management Plan sites and the barriers and signage that help to protect them.

Collectively, OHV restoration funds were utilized to immediately repair fences and to slash the affected sites. Sites needing more intensive treatments were also identified. The Forest continued to coordinate with other non-OHV patrols and law enforcement staff to monitor HMP locations being degraded by non-OHV use.

Although the monitoring checklist provided immediate short term solutions to some unauthorized uses, the Forest continued to recognize the need to increase on the ground monitoring staff to educate riders to remain on designated routes. OHV funding for additional staffing was procured to provide education and to prevent future disturbance to sensitive habitats along green sticker routes within and adjacent to the southern California urban interface. In addition, the Forest made an effort to retain monitoring staff that were Forest Protection Officer Certified.

Coordination between SBNF OHV staff and OHV law enforcement staff focused efforts in locations with repeated unauthorized activities. The Forest also coordinated with the Bureau of Land Management to improve OHV management along their shared boundary on the Mountaintop District. The Forest continued to recruit additional HMP volunteers for monitoring and site maintenance. A strong USFS and volunteer presence appears to be the most effective method to protect habitats along green sticker routes.

3) OHV Restoration Monitoring and Maintenance

The SBNF and the Southern California Mountains Foundation both utilized OHV grant restoration funds to continue restoration monitoring and maintenance activities. Over 700 sites were monitored and/or maintained. The Forest also coordinated with the BLM to discuss work required along shared boundaries for the USFS to restrict unauthorized motorized use into the Deep Creek Inventoried Roadless Area and Critical Biological Zone. The Forest began restoration of a portion of the recently approved and improved Summit OHV Staging Area. A portion of the area was chunked, planted, seeded and weeded. The Forest also began seed collection and restoration planning to restore the existing Miller Staging Area which is located adjacent to a riparian area. The old site will be restored after the new upland staging area is completed. A majority of the USFS monitoring and maintenance of existing restoration sites occurred at Horse Springs, Coxey, Dawn O' Day, Cienega Redonda, Cactus Flats, and Holcomb Valley. In addition, the Southern California Mountains Foundation urban conservation crews maintained, watered and weeded the Summit Staging Area and the Cleghorn Restoration sites.

One, multiyear project funded by the State of California OHV Restoration Fund was completed this year. The Southern California Mountains Foundation completed the Cleghorn Restoration Project on SBNF lands adjacent to the popular Summit OHV Area. Staff and Urban Conservation Corpsmembers restored lands adjacent to an Inventoried Roadless Area and the recommended Cleghorn Canyon Research Natural Area (RNA). Three miles of unauthorized routes were restored. In locations with deepest ruts, dozers were utilized to chunk soils for decompaction and planting. Thirty acres were treated with seeding, planting and slashing, and 400 acres were protected by barriers (pipe-cable fence and boulder placement) and restoration signage.

4) Adopt-a-Trail Program Road/Trail Monitoring and SBNF Volunteer Monitoring

The San Bernardino National Forest Adopt-A-Trail Volunteers contributed 10,476 hours conducting Forest-wide OHV trail and road maintenance along green sticker routes with a 100% accident free safety record during fiscal year 16. Additional hours of maintenance were contributed along 4x4 roads.

Members of the motorized Adopt-A-Trail (AAT) Program maintained over 200 miles of forest roads and trails. The AAT Program had over 38 active clubs with thousands of volunteers that conducted monitoring on three Ranger Districts; Mountaintop, Front Country and San Jacinto. In addition, some volunteers operated our trail dozer (Sweco), front loader (Kubota), backhoe, rock rakes, chainsaws, ATV's and motorcycles.

The Adopt-A-Trail clubs monitored thousands of acres of NFS lands. Every adopted road and trail had an annual written road/trail maintenance plan that identified specific maintenance and monitoring requirements. Maintenance included road grading, brushing, culvert and drain clearance, off road restoration, maintenance of signs, and facilities. The maintenance plans include monitoring points such as; fence lines, barricades for sensitive habitats, restoration sites, hiking trail interfaces (unauthorized use), private property and wilderness trespass and stream crossing monitoring. OHV employees and OHV volunteers repair any breach of barricades, fence lines, etc. These breach points become future monitoring points for OHV patrols and OHV projects. If an area has been breached by motor vehicles multiple times, analysis determines methods to be completed to deter future damage to the area. Typically, signs are posted, law enforcement increased and any barricades are bolstered until unauthorized motorized use is deterred.

5) SCMF-OHV Volunteer Program Monitoring

In fiscal year 2016, the Southern California Mountains Foundation (SCMF)-OHV Volunteer Program had 256 members conducting monitoring on all three Ranger Districts: Mountaintop, Front Country and San Jacinto. There were 20,882 hours of volunteer time were contributed to this effort. These OHV Volunteers are skilled 4 x 4, ATV and motorcycle operators that provide the public one on one OHV education. OHV Volunteers provided written reports summarizing their daily activities monitoring and patrolling the National Forest.

After completion of 80 hours of specified training, the SCMF OHV Volunteers are given the authority to patrol as OHV hosts, making public contacts while monitoring the Forest use patterns. The OHV Volunteers reported forest fires, unauthorized campfires, traffic collisions and other incidents while providing service to our visiting public. While in the field, the OHV Volunteers are trained to monitor

sensitive areas such as meadows, wilderness areas, urban interface (excessive sound and trespass), streams, cultural sites and rare plant/wildlife habitats for unauthorized motorized use.

The OHV Volunteers are a vital Forest resource, having the expertise to reach the back country of the National Forest to perform the duties as described.

6) Forest Travel Management Monitoring

Monitoring occurs in conjunction with implementation of the Forest Travel Management decision. All Forest Roads and Trails that were affected by decommissioning and/or restoration efforts are monitored. If motorized vehicles have breached a site, the OHV Employee, Adopt-A-Trail Volunteer or SCMF OHV Volunteer will repair the breach immediately. If the breach requires equipment, supplies or a work party, the Forest Liaison schedules a project to repair the breached site. As with other monitoring programs, work parties are scheduled when intensive treatments are needed.

Conclusions for Soil Monitoring, HMP, Restoration Site Monitoring and Maintenance, Adopt-A-Trail, SCMF OHV Monitoring, and Travel Management Monitoring Programs

Off-Highway vehicle use on designated routes is consistent with Forest Goal 5.2 to provide for public use and resource protection. Active management for OHV use is also consistent with this goal and Strategy Law 1 to utilize cooperative agreements with local law enforcement agencies, and supplement field personnel and provide additional law enforcement support primarily on high use weekends or holidays when visitor use is highest. OHV management is a program emphasis in several of the Places across the Forest. The LMP prospectus for trends and expectations for Trails states that the program will emphasize improving the NFS OHV trails and roads by designating OHV road and trail routes and effectively managing inappropriate use. The desired condition for OHV use is for the use to safely occur on designated routes only.

Soil, Habitat Protection, restoration site, road and trail, educational and travel management monitoring are conducted and actively supported by OHV and resource staff, and Adopt-A-Trail and SCMF OHV Volunteers. Mitigation of unauthorized OHV use to protect natural resources and wildlife habitats has been successful in many locations however additional patrol staffing is needed to keep riders on designated routes. In areas where the Forest has a managed presence, unauthorized use can be reduced. Volunteer contribution is vital to the success of protecting sensitive habitats, maintaining roads and trails, and providing education and safety to the public. The monitoring programs have the ability to move the Forest toward the LMP desired condition for OHV management.

The 2015/2016 State of California Off Highway Motor Vehicle Recreation Division grant proposals on the Forest included requests to meet the needs described above in Ground Operations and Law Enforcement. A total of **$ 659,216** was approved. The Southern California Mountains Foundation also procured **$92,069** for OHV Education and Safety on the Forest. Use of these funds began in fiscal year 2017.

Recommendations for Soil Monitoring, HMP, Restoration Site Monitoring, Adopt-A-Trail, SCMF OHV Monitoring and Travel Management Monitoring Programs

- Conduct Trail Condition Assessments and complete annual OHV trail maintenance within specified timelines. Monitor soil conditions using the photo monitoring protocol in the 2017 Ground

Operations Soil Conservation Plan. Utilize the newly purchased small excavator to stabilize trails on OHV routes.

- To comply with LMP Standard 35, for identified desired conditions for managed motorized recreation, watershed management and sustainable biological resource conditions, staff will continue to coordinate the HMP, Restoration site monitoring, Adopt-A-Trail Program and the SCMF OHV Volunteer monitoring program.
- To ensure all HMP and restoration sites are monitored four times a year as required, conduct monitoring in November, February, May, and August. Prioritize activities required to restore HMP sites and utilize FY17 Restoration grant funds to restore/protect sites.
- Continue the Travel Management monitoring as scheduled.
- Request additional patrol and law enforcement staff in future OHV grants.
- Reinitiate monthly conference calls with law enforcement and Forest Protection officer staffing across all Districts.
- Continue to support, educate and supervise USFS OHV staff and OHV Volunteers and to coordinate efforts of all field going patrols including law enforcement personnel.

Heritage Program Monitoring

In FY 2012 and 2013, a new National Forest Heritage Program management scoring system was implemented which replaced the reliance on a single indicator, the monitoring of Priority Heritage Assets (PHAs). In the new program, seven component measures provide a view of progress with a target of 1 "Heritage Program Managed to Standard" per forest. The following instruction was provided to National Forests:

> • A Heritage Program managed to standard represents the combined goals of social, environmental, and economic sustainability in the FS Recreation Strategy and Heritage Program responsibilities to protect historic properties, share their values with the public, and contribute information and perspectives to land management. A unit will be counted as one Heritage Program Managed to Standard when the cumulative total of seven heritage stewardship indicators (10 points each) reaches a minimal score of 45 points. The seven indicators reflect the health and performance of FS unit programs in meeting manual direction to preserve America's heritage through responsible stewardship activities that recognize, protect, enhance, and use cultural resources for the greatest public benefit. This measure is calculated in NRM and reported out as one for each Forest meeting the minimal passing score. Targets will be assigned as number of Forests with passing scores.

According to the new Heritage Program Managed to Standard guidelines, National Historic Preservation Act Section 110 (Section 110) monitoring proceeds from the preliminary steps of identifying, evaluating, and allocating historic properties and other important cultural resources to management categories. These management categories include preservation, scientific research, and adaptive reuse or enhancement for public visiting. Having volunteers and other help with this process promotes a diversity of viewpoints in determining what is significant about our heritage and how it should be protected, managed, and promoted.

Most of the historic resources classed as Priority Heritage Assets on the San Bernardino National Forest are either eligible for listing on the National Register of Historic Places (NRHP); are listed as California Historical Resources; or are part of Forest-level designations such as Special Interest Areas (SIA). However, allocation to management categories and the development of management plans have not yet been carried out for the most part. Between 2004 and 2012, the Forest had been visiting all of its PHAs on a five-year cycle by district, however without a Forest-level decision on how to sites are to be preserved or data recovered when thresholds of deterioration are reached, Section 110 monitoring has lacked direction and utility. For this reason, after years of focusing on monitoring the condition of existing Priority Heritage Assets, in FY 2016, as in FY 2014 and FY2015, the SBNF Heritage Program continued to concentrate on expanding the newer elements of the program.

Results

Heritage Program goals were completed in five (**in bold type**) of the seven indicator categories by the SBNF Heritage Program, by the following projects.

Indicator 1: Program Plans: (10 points)
Addition to historic context in evolving Heritage Plan including historic contextual information contributed by CRM professional
Indicator 2: NHPA Section 110 Field Survey (10 points)
Big Pine Flat Historic District Site Resurvey
Indicator 3: NRHP Site Evaluations and Nominations (0 points)
None of the sites evaluations completed in FY 2016 were of a nature to contribute to fulfilling this indicator.
Indicator 4: Priority Heritage Asset condition Assessment (5.07 points)
Residual points from previous year condition assessments
Indicator 5: Priority Heritage Asset Stewardship (7.5) points)
Summit Staging Area sign to protect
Santa Fe Trail
John Brown's Road
AT&SF Railroad
Indicator 6: Public Outreach (10 points)
Cleghorn OHV trail sign;
Data Management: Public Aid in Migrating INFRA and GIS databases.
Site Stewards
SCA symposium
Public Aid in Planning
Indicator 7: Volunteer Contributions (10 points)
More than 400 hrs contributed.

Indicator 1: Heritage Program Planning

In line with the goals of a learning organization, the SBNF has an evolving heritage plan. Each year, heritage staff add to or rewrite parts of the plan, context, or overview in order to keep it up to date. In doing so in FY 2016, recommendations made in the existing Heritage Program Plan and new recommendations made in the FY2015 LMP monitoring document were incorporated:

- Integrate tribal relations work and public outreach into the preparation of Section 110 Survey, Evaluations, and Stewardship.

- Plan Heritage projects so that work towards heritage targets is integrated with work towards targets of other program areas to increase the pace and scale of ecological restoration while fulfilling heritage targets.

As in previous years, the results of NHPA Section 110 Survey results were used to develop a historic context for the SBNF, and the areas selected for survey were designed to enhance work done for other projects. In order to improve public participation in developing the historic context, in FY2016 the SBNF invited participation from professionals in cultural resource management (CRM)., A CRM professional donated time and provided the SBNF with a synthesis of recent data regarding the distinctions between Archaic and Late Prehistoric artifacts and sites. This information was very useful for providing a new basis for determining site boundaries in a proposed Historic District in the Rattlesnake OHV Trails Project area of the San Bernardino Mountains.

Indicator 2: Broad Scale or Other Section 110 Survey

Broad scale and other Section 110 Survey on the SBNF in FY2016 concentrated on site relocation in three areas of the Forest. In an area adjacent to the Rattlesnake OHV Trails Project area, a group of 14 sites was recorded in 2002 as Historic District whose significance lay in the fact the sites represented a large seasonal camp and three temporary camps surrounded by smaller plant-processing sites, lithic scatters and occasional isolates. Before concurrence could be sought from the SHPO, following the Butler-Slide Fire, the district was re-recorded as four very large sites with loci and intermediary areas of lighter artifact scatters. During FY2016, the 250 acres encompassed by the proposed Historic District was resurveyed by SBNF heritage staff, and field identification of sites were made based on recent distinctions between Archaic and Late Prehistoric sites. Decisions on how to record the sites and their evaluation and will be completed as a later step.

Two more projects, the Cal Poly Pomona survey in the north Arrowhead area in the San Bernardino Mountains and the Applied Archaeology Field School in the Garner Valley area of the San Jacinto Mountains, have not yet reported survey area and sites. As they are still in progress, currently their greatest value is the participation of students and Native American monitors and the presentation of the preliminary data in the form of professional contributions and they are presented under the heading "Professional Contributions".

Indicator 3: NRHP Site Evaluations and Nominations

None of the sites evaluations completed in FY 2016 (Daley Road, Camp Conifer, Jenks Lake Flume, and Old Erwin Ranch Road refuse site) were of a nature to contribute to fulfilling this indicator.

Indicator 4: Historic Property Condition Assessment

Sites of the former Cajon District were scheduled for historic property condition assessment in FY2016, and while this activity was started, it was not completed due to the Bluecut Fire. However, in FY 2016, Heritage staff also combined forces with the Engineering staff in monitoring the historical Tahquitz Peak Lookout. The Engineering staff is responsible for monitoring multi-use assets so this monitoring effort

was not reported in the Heritage INFRA database, but through the Building INFRA database. The Engineering staff carried out the monitoring but took the heritage evaluation report to determine which features were historic and significant. They re-documented these features with photographs, including the vistas and views that are important components of the significance of this building under criterion A and C. The photos revealed that building remains in very good condition, and the recent repainting of the interior used the historical 1930s lookout colors.

Indicator 5: Priority Heritage Asset Stewardship

The Heritage staff provided content for a sign to be placed at the newly-finished Summit staging area designed to inform the public of the historic Santa Fe Trail, John Brown's Road and AT&SF Railroad sites in the area. All three of these sites are considered PHAs based on their designations of eligibility to the NRHP or the California Places of Interest. The signs requested that the public ride only on authorized OHV routes to avoid accidently riding on the Santa Fe Trail or John's Brown Road, which both appear as narrow dirt routes similar to OHV routes. The AT&SF Railroad is still in use and does not risk damage for OHV riders, but sites associated with the construction of the railroad, are at risk from riders leaving trails and riding cross country. One such site, a Chinese construction site, was discovered after the Blue Cut Fire had burned off the desert scrub vegetation, and other sites may be similarly hidden along the route of the railroad or its access roads.

Indicator 6: Public involvement, or education and scientific research.

Stewardship begins with the interpretation of what to manage and how it should be managed. Having the public as well as the tribes involved in all of the steps (survey, evaluation, allocation to management categories, condition monitoring, preservation and other stewardship activities, and public interaction) ensures a wide representation of opinions in this interpretation. For this reason, the Heritage Program tried to involve a wide range of participants in each of these steps. In addition, public outreach using signs and brochures was carried out to widen the circle of people interested in participating in determining and preserving their heritage.

Cleghorn Interpretive Sign: In FY 2016, Heritage staff also provided interpretive information for a sign for the Cleghorn Green sticker Road, accessed from the newly-finished Summit Staging area. The sign was destined to inform the public of the presence of important Native American sites in the area, and stimulate interest in construction of the nearby Pacific Crest Trail, blazed in the 1930s and the construction of the Cleghorn road itself, initially developed as a firebreak trail in the 1960s. Because the sites illustrated on the Cleghorn sign are not classified as PHAs, the sign is considered to be simply an interpretive sign.

CASSP-style Site Stewards: Similarly, a CASSP-style Site Stewardship program in 2008 is currently considered a public education project rather than a stewardship project. This project has lagged due to Heritage and OHV staff turnover, so in FY2016, the Heritage Program staff again restarted the program by training a volunteer leader and cadre to take over the management functions from the staff, and make the program less susceptible to changes in Forest Heritage staff and workloads.

CRM professional participation in planning: As noted above, a CRM professional donated time to providing the SBNF with an up-to-date synthesis of the distinctions between Archaic and Late Prehistoric artifacts and sites.

Society for California Archaeology Symposium: For several years, Cal Poly Pomona archaeology students led by their professor have carried out survey and relocated sites originally recorded in the 1960s in the north Arrowhead Lake area. This year, students and professors presented their preliminary findings at the Society for California Archaeologists in a symposium on the San Bernardino Mountains organized by staff from Cal Poly Pomona, the SBNF and the San Manuel Band of Mission Indians.

Preliminary findings of the most recent Applied Archaeology Field School sessions conducted by the SBNF and the San Manuel Band of Mission Indians (2014-2015) were also presented as this symposium, and in an earlier form, at the Coachella Valley Archaeological society. This field school was originally associated with university course offerings, but has more recently redeveloped as field school for training Native American monitors. The field school was run this year by the Environmental Director for the San Manuel Band of Mission Indians. SBNF also participated in the planning and teaching and the school was attended by six students. The final number of sites recorded and the number of acres surveyed has not yet been submitted, and the report of findings for this school and previous field schools will be completed in the future.

Archives Management: A volunteer GIS intern from Cal State San Bernardino undertook to digitize the SBNF Mineral Atlas from the SBNF archival collection. Historical mining claims were digitized using the cogo tool so that they could be overlaid on historical mining sites locations, in order to aid in interpreting these sites. The initial impetus was the proposed Rattlesnake Trails OHV project in the vicinity of the Balanced Rock Mine, but this data can be used throughout the forest. Over the last three years, the intern worked 287 hours on the project.

National Heritage Database Migration: Since February 2015, Forests nationally have worked towards migrating their spatial and tabular data to a new oracle application. The new modernized application is more powerful and more intuitive for the web user. The new application (which will soon also be used for roads, trails, recreation sites, etc) will also help make the USFS data better available to the public. On the San Bernardino National Forest, the task of making our heavily California-state organized data compatible with National Forest standards, provided opportunities to the public to work with us. Four interns from 3 local colleges/universities contributed over 518 hours to refiling surveys and digitizing them in GIS.

Riverside Archaeology Expo: In 2016, Heritage staff participated in the Riverside Archaeology Expo, handing out fliers and answering questions. However, this activity was not reported in the INFRA Database.

Indicator 7: Volunteer Contributions

Volunteers contributed time towards helping the forest meet their goals in nearly all of the projects listed above. The volunteers included Cultural Resource Management professionals from outside the Forest, university students in archaeology and their professor; native American monitors led by a tribal Environmental Director, volunteer GIS specialists and interns, and OHV volunteers. Having a diversity of

volunteers helped widen the perspectives involved in identifying, interpreting, and stewarding our heritage.

Other Monitoring: Project monitoring:

Monitoring the work of other program areas as part of project implementation remains an important protection measure and was used on 3 projects: North Fire BAER route decommissioning, FSR 3N21 roadwork after storms and the repairs to the Big Pine Water System. The usefulness of this protection measures and others are now measured as a part of Phase III LMP monitoring; this monitoring is underway by Heritage staff.

Other Monitoring: Monitoring for Vandalism

Cal Trans contractors employed a night-watch to monitor for vandalism following the Blue Cut Fire which burned vegetation and exposed sites. The Cal Trans contractors notified the Forest that two parties had been on site. Their report has not yet been submitted to the Forest. Overall impacts to the site appeared to be low and it is unclear at this time if additional actions will be taken by law enforcement.

Conclusions

Heritage Program achieved a 1 for Heritage Program Managed to Standard and expanded its work in some of the newly measured components. However, little work went forward in FY2015 on monitoring the condition of Priority Heritage assets because management plans were lacking. Stewardship begins with the interpretation of what to manage and how it should be managed. As better understanding of Heritage resources on the San Bernardino National Forest is gained through survey (both Section 106 and Section 110); the integration of the Tribes and the public in our learning about our resources and in the development of historic contexts; a clear view of management needs should emerge. In addition, integration of the Heritage Program and other programs on the San Bernardino National Forests is needed to make the program more successful. For example, management plans should be prepared jointly with the aid of other program areas for sites that are used (or traversed) by the activities of other program areas if the sites are eligible to be on the National Register of Historical Places or are otherwise important to the public.

Recommendations

Integrate tribal relations work and public outreach into the preparation of Section 110 Survey, Evaluations, and Stewardship.

Integrate heritage volunteer participation with other types of volunteer groups or tribal participants to for an "all hands, all lands" approach.

Plan Heritage projects so that work towards heritage targets is integrated with work towards targets of other program areas to increase the pace and scale of ecological restoration while fulfilling heritage targets.

Create management plans for heritage PHAs in conjunction with management plans of other program areas, wherever possible, to integrate management goals.

Water Quality Monitoring

Monitoring

Fiscal year 2016 was the 25th year of the Best Management Practices Evaluation Program (BMPEP) on the San Bernardino National Forest (BDF) and the Forest Service Pacific Southwest Region (R5). This program is designed to evaluate Best Management Practice (BMP) implementation, i.e., "did we do what we said we were going to do to protect water quality" and effectiveness, i.e., "how well did we protect water quality".

All projects with potential to adversely affect water quality incorporate BMP implementation and effectiveness monitoring. The objectives of the BMPEP monitoring program are:

1. Early detection of actual or potential water-quality problems associated with current management activities.
2. Documentation and correction of known deficiencies in BMP implementation.
3. Assessment of long-term (3 to 5 years) effectiveness of water-quality protection measures.
4. Evaluation of linkages between resource management activities, including BMP implementation and watershed restoration programs, and cumulative watershed effects.
5. Calibration of thresholds of concern for cumulative watershed effects analyses.
6. Evaluation of water-quality trends affecting beneficial uses in receiving waters downstream of forest management activities, including waters listed as impaired under section 303(d).
7. Assessments of water quality in reference streams for comparison with listed and potentially listed impaired waters.

The BMPEP protocols, with random site selection, are the primary means of assessing the effectiveness of water-quality protection for current projects and past management activities on National Forest System (NFS) lands.

BMP monitoring strives for interdisciplinary evaluation of projects, including project proponents and watershed personnel. This interdisciplinary effort is intended to provide direct feedback to the project proponent on how well the BMP was implemented and allows for adaptive management on future project design.

Discussion and Results

Region 5 (R5) policy for implementing and monitoring Regional BMPs expired on December 5, 2016 and unlike previous years the Regional Office (RO) didn't assign the type and number of management activities to be evaluated on each Forest. In addition, the database for entering and scoring Regional BMPs was not available. Regardless, a total of 31 Regional BMPs at 10 sites were completed on the BDF in FY16.

The National BMP program implemented in FY13 continued in FY16 with RO direction that a total of 12 National BMPs are to be completed over the FY15-16 two year period. In FY15 the BDF completed 9 national BMPs and 5 national BMPs were completed in FY16 totalling 14 national BMPs completed for the two year period.

Selected Evaluation Site Monitoring

In FY16 the San Bernardino National Forest using protocols from the R5 BMPEP User's Guide[1] conducted a total of 31 BMP evaluations at 10 selected evaluation sites (Table 1). Evaluation sites are identified in two ways, random and selected. Random sites are picked from a pool of projects that meet specified criteria, while selected sites may be identified in several ways including part of a routine site visit, part of a NEPA or LMP prescribed monitoring plan and more. In FY16, only selected evaluation sites were identified as either part of a routine site visit or follow-up BMP evaluation from the preceding year. Selected sites are not used to develop statistical references and are kept separate from random site data collection.

Regional BMP evaluations are grouped into eight subject areas:

- Timber Management
- Recreation
- Fire Suppression and Fuels Management
- Vegetation Manipulation
- Road Management
- Range Management
- Mining
- Watershed Management

BMP implementation and effectiveness evaluations are typically a combination of an office review, e.g., contract review, NEPA review, IDT notes, operation and maintenance plan, etc., and a site visit. Implementation scoring falls into one of three categories (implemented, minor departure, or major departure) and effectiveness score categories are effective, at risk, or not effective. Results of the 31 BMP evaluations were not scored in FY16 as the R5 BMP database used for data storage and scoring was not available. Previous year average scores found that 93 percent were implemented and 83 percent were effective.

National Best Management Practices Evaluation Program

The purpose of the National BMP program is to provide a standard set of core BMPs and a consistent means to track and document the use and effectiveness of BMPs on NFS lands. The National Core BMPs are not intended to supersede or replace existing regional, State, forest, or grassland BMPs. Rather, the National Core BMPs proved a foundation for water quality protection on NFS lands and facilitate national BMP monitoring. The National Core BMPs encompass the wide range of activities on NFS lands including the following:

- General Planning Activities
- Chemical Use Management Activities
- Wildland Fire Management Activities
- Aquatic Ecosystem Improvement and Restoration Planning
- Facilities and Nonrecreation Special Uses Management Activities
- Minerals Management Activities

[1] U.S. Department of Agriculture, Forest Service. 2002. Investigating Water Quality in the Pacific Southwest Region. Best Management Practices Evaluation Program (BMPEP) User's Guide. Vallejo, CA. 129 p.

- Rangeland Management Activities
- Road Management Activities
- Water Uses Management Activities
- Recreation Management Activities
- Mechanical Vegetation Management Activities

The primary intent of the National BMPs is to carry out one of the Clean Water Act (CWA) purposes to maintain the chemical, physical, and biological integrity of the Nation's waters with a focus on water pollution control. The National BMPs also address soil, aquatic, and riparian resources, but only to the extent that they contribute to maintenance of chemical, physical, and biological water quality.

The National BMP program was implemented in FY13 and continues to the present day. In FY16 rather than having an annual target, RO direction was that a total of 12 BMPs were to be completed over the FY15-16 two year period. the BDF completed 9 BMPs in FY15 and 5 in FY16 exceeding RO direction.

Implementation ratings fall into one of five categories, which include Fully Successful, Mostly, Marginally, Not, or No BMPs. The "No BMPs" score means site-specific BMP prescriptions were not developed or identified during project planning. The remaining categories reflect whether "All", "Some", or "No" prescriptions were developed or identified in the planning documents and implemented. Effectiveness ratings fall into one of three categories, which include Effective, Mostly Effective, or Not Effective and are determined by whether a pollutant reached a waterbody (or very close) and the degree of adverse effect to the waterbody from the project or activity. Composite ratings are an overall rating combining both Implementation and Effectiveness scores and fall into one of five categories, which include Excellent, Good, Fair, Poor, and No Plan.

Results of the BDF National BMP evaluations for FY16 found that 40 percent or 2 out of 5 were implemented marginally or better and 60 percent or 3 out of 5 were were mostly effective or better at protecting water qualilty. In comparison, FY15 found that 56 percent or 5 out of 9 were implemented marginally or better and 67 percent or 6 out of 9 were mostly effective or better at protecting water qualilty (Table 5). In comparison, results for FY14 found 71 percent implemented and 43 percent effective.

Conclusions and Recommendations

Due to the previously mentioned issues regarding database access, it was not possible to score and compare FY16 data against previous years. The FY16 BMP program was primarily focused on road maintenance and operation at stream crossings. Road surface rilling with sediment reaching the stream channel is a consistent problem as well as sidecast material being placed in or near the stream channel.

The National BMP program is relatively young with a small sample size. The trend indicates a clear decline in the BDFs ability to implement BMPs designed to protect water quality, i.e., "did we do what we said we were going to do to protect water quality".

Management approval and support of the following recommendations are key to their success. Recommendations for improving implementation and effectiveness ratings are similar to previous years and may include the following:

1) The primary person conducting the evaluation should, in most cases, be the person with the responsibility for implementing the BMP practices.

a. BMP evaluations are designed for completion by those persons responsible for the execution of the practices. For example, Range Conservationists would conduct grazing evaluations, Forester would conduct timber evaluations, Recreation Specialist would conduct recreation evaluations, and an Engineer would conduct road evaluations, etc.

The Forest Hydrologist could identify BMP evaluation sites that are to be completed and assign them to each District no later than December 31st of the current fiscal year.

2) The R5 Water Quality Management Handbook[i] requires a Wet Weather Management strategy to protect water quality by closing access routes during inclement soil moisture conditions as well as a Road Patrol Plan.

a. The BDF does not have a formal wet weather operation plan nor a road patrol plan designed to prevent wet weather access to many areas and to repair damage to roads that may adversely affect water quality.

The Forest Hydrologist could lead an interdisciplinary team to develop a wet weather management strategy for review, approval, and implementation across the BDF.

3) As directed in the Water Quality Management Handbook (FSH 2509.22), all permanent full-time (GS-9 level and above) Forest Service watershed, timber, fire and fuels, engineering, range, and recreation staff are required to attend an introductory BMP training within 3 years of being hired as new employees and all employees will attend refresher training at least once every 5 years.

a. Training and awareness of the Best Management Practices Evaluation Program is crucial for continuous improvement opportunities and ongoing success.

The Forest Service Regional Hydrologist is responsible for coordinating this training and could work with the RO, the Danny Rhymes Training Center, or others for assistance in developing the curriculum and providing the training. Once developed, all managers should ensure their employees attend the required training.

4) To ensure that sites receiving an at "at risk" or "not effective" rating are addressed, a BMP annual monitoring report summary by District should be distributed to each District Ranger and Program Manager for future Program of Work (POW) consideration.

a. The POW for engineering, specifically road maintenance, is often determined after receiving input from the District Ranger. This process is similar in regards to recreation. Presently, there is not a formal process for reporting or communicating BMPs receiving an "at risk" or "not effective" rating. Without a process for reporting or communicating BMP monitoring results to the District Ranger and Program Managers prior to determing next years POW, sites receiving less than an effective rating may not get fixed and continue to deteriorate.

The Forest Hydrologist could present and discuss BMP monitoring results during POW planning meetings.

5) Develop and implement a standard road maintenance and operation plan for stream crossings and riparian conservation areas such that the road is hydrologically disconnected from the stream channel.

a. More than any other land management activity, sediment delivery to stream channels via forest roads is the primary source of water quality and aquatic habitat degradation. Road maintenance can increase sediment routing to streams by creating areas prone to surface runoff, altering slope stability in cut-and-fill areas, removing vegetation, and altering drainage patterns.

   Working with the engineering department, the Forest Hydrologist could identify and prioritize stream crossings requiring maintenance. The Forest Hydrologist could assist in the design of stream crossings and approaches necessary to hydrologically disconnect the road from the stream.

6) Within a HUC6 watershed (typically 10,000 to 40,000 acres in size), reduce road/trail density to less than 1 mi/mi^2 with no more than 10 percent of the road/trail length located within 300 feet of streams and water bodies or hydrologically connected to them[2].

   a. Roads affect watershed condition because more sediment is contributed to streams from roads and road construction than any other land management activity. Roads directly alter natural sediment and hydrologic regimes by changing streamflow patterns and amounts, sediment loading, transport, deposition, channel morphology and stability, and water quality and riparian conditions within a watershed. Road density is known to play a dominant role in human-induced augmentation of sediment supply by erosion and mass wasting in upland forested landscapes.

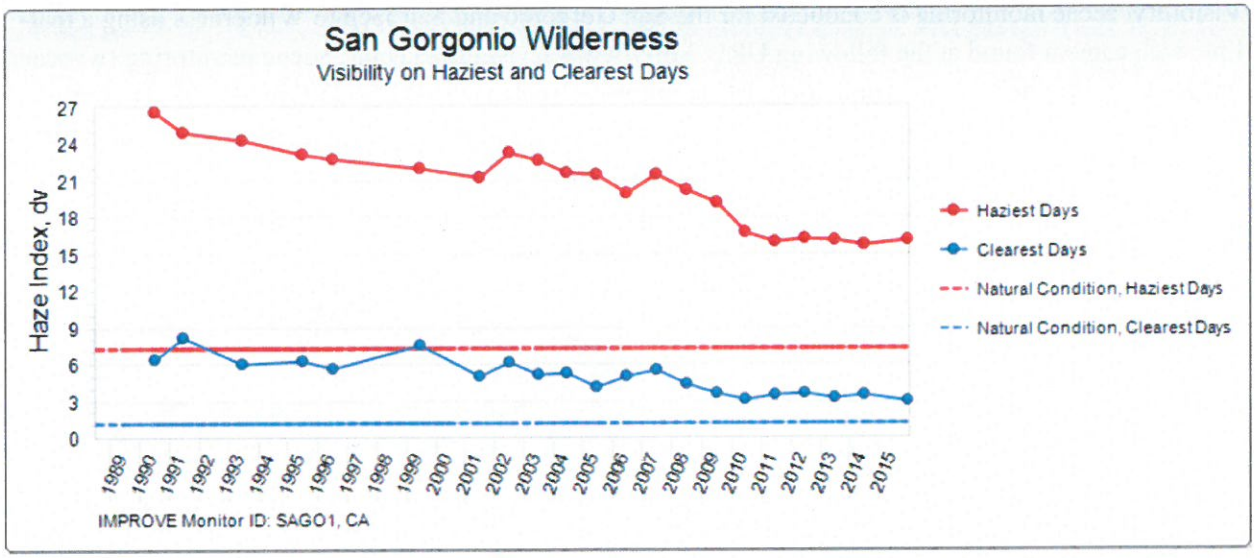
      The Forest Hydrologist could lead an interdisciplinary team in identifying and decommissioning road/trail routes necessary to achieve this recommendation.

Air Quality Monitoring

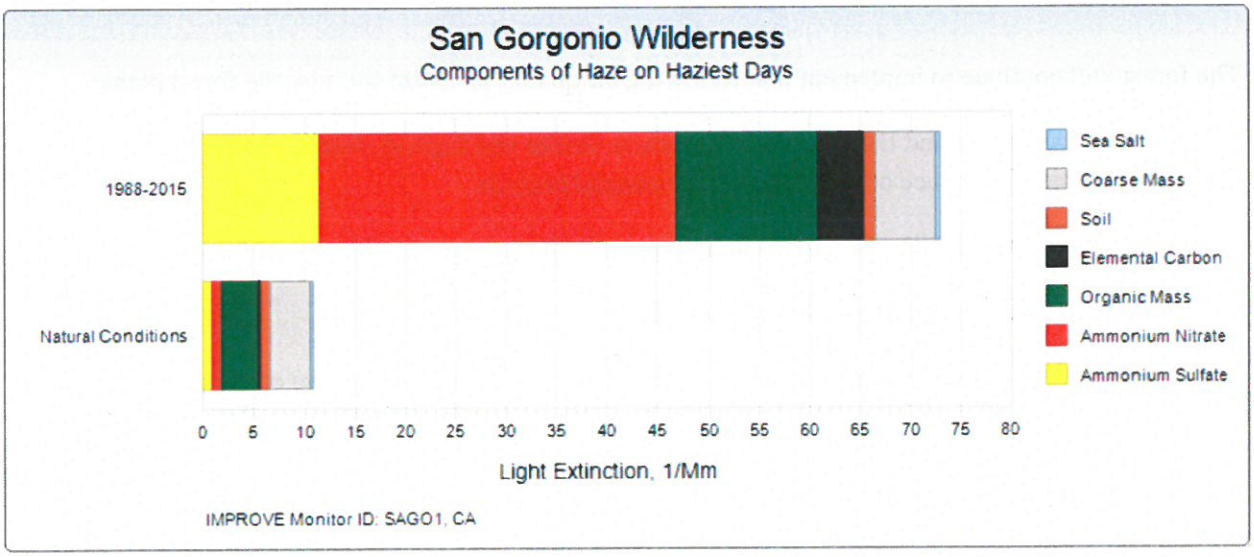
Monitoring

Under the IMPROVE program, a monitor near the Converse Fire Station measures the air quality for the San Gorgonio Wilderness Class 1 airshed. Monitoring results from this site indicates visibility has been increasing in the wilderness. The largest sources of haze are ammonium sulfate and ammonium nitrates. See the figures below for results of the monitoring data. The agency will continue to assess wilderness visibility of large stationary sources under the Prevention of Significant Deterioration (PSD) program of the Clean Air Act.

[2] U.S. Department of Agriculture, Forest Service. 2011. Watershed Condition Classification Technical Guide. FS-978. Washington, D.C. 49 p.



Graph 3: Monitoring results from the San Gorgonio site. Red lines indicate the worst days while blue indicates the best days. A deciview (dv) reading of "0" indicates a clear view with no reduction in visibility.



Graph 4: Haze components compared to natural background and amount of visibility each reduces in the San Gorgonio Wilderness.

More information may be found at the Federal Land Manager Environmental Database (FED) web site: http://views.cira.colostate.edu/fed/

Visibility/ scene monitoring is conducted for the San Gorgonio and San Jacinto Wilderness using a real-time web camera found at the following URL: http://www.fsvisimages.com/. Scene monitoring (webcam) images are combined with aerosol air quality monitoring (such as the IMPROVE program) to determine what varying levels of air pollution effect visibility of Class I wildernesses. Typical visual range in the western U.S. is 60 to 90 miles, reduced by about one-half from natural conditions due to air pollution. See Figure 8 below for an example of scene monitoring at the San Gorgonio Wilderness. In addition, these cameras can take images of nearby wildfires or prescribed fires.

Figure 8: Photo Left: An example of medium visibility and clouds on July 24st, 2017 at 3:00pm. Photo Right: An example of near -pristine air quality at the same location.

The forest will continue to implement that following air quality goals set forth by the forest plans:

Air 1 - Minimize Smoke and Dust Control and reduce smoke and fugitive dust to protect human health, improve safety and/or reduce or eliminate environmental impacts.

- Incorporate visibility requirements into project plans.
- Use emission reduction techniques (ERT).

Air 2 - Forest Air Emissions Maintain and update the inventory for wildland fire emissions and other national forest resource management emissions within the current State Implementation Plan (SIP). The State Implementation Plan inventories establish levels of air pollution that meet the long-term federal air quality goals for bringing the nonattainment areas to attainment of the National ambient Air Quality Standards.

- Describe the magnitude and timing of prescribed and wildland fire emissions in each Air Pollution Control District.
- Provide input to AQMD on regional air quality issues for forest protection.

Part 3 Monitoring

Implementation and effectiveness monitoring for Part 3 of the LMP are conducted at the project level in order to evaluate the effectiveness and application of design criteria established in the LMP. Part 3 of the LMP requires annual implementation monitoring of new projects and ongoing activities and sites. As detailed in the LMP, the Program Emphasis and Objectives describe the activities and programs on the Forests. Activities were organized into six functional areas, which include all areas of business for which the Forest is responsible. The functional areas collectively include 35 programs. National Forest management uses the results to clearly communicate program capability both internally and externally.

The Program Emphasis and Objectives' six functional areas are:

- Management & Administration: National Forest leadership, management and administrative support activities, communications, external affairs, community outreach, planning, human resources, information technology, and financial management.
- Resource Management: Activities related to managing, preserving, and protecting the national forest's cultural and natural resources.
- Public Use & Enjoyment: Activities which provide visitors with safe, enjoyable and educational experiences while on the national forest and accommodate changing trends in visitor use and community participation and outreach.
- Facility Operations & Maintenance: Activities required to manage and operate the National Forest's infrastructure (i.e., roads, facilities, trails, and structures).
- Commodity & Commercial Uses: Grazing management, forest special product development, and activities related to managing non-recreation special-uses such as National Forest access, telecommunications sites, and utility corridors.
- Fire & Aviation Management: Wildland fire prevention through education, hazardous fuels reduction, and proactive preparation. This program also includes on-forest wildland fire suppression, and national or international wildland fire and emergency incident response.

An interdisciplinary review team visited the selected projects and ongoing activities and sites to review the effectiveness of applying LMP design criteria. If problems in implementation were detected, or if the design criteria were determined to be ineffective, then the team recommended corrective actions. Corrective actions may include amendments to the LMP if necessary to improve the effectiveness of the design criteria.

Appendix C of Part 3 in the LMP identifies at least 10 percent of projects and on-going activities will be reviewed annually. The LMP should be amended to randomly select, for the monitoring period, at least five new projects. Ideally, a project will be selected from each functional area, excluding Management & Administration because new projects do not fall in this functional area. If there are a large number of new projects implemented, as timing and funding permit, additional projects will be randomly selected from each applicable sub-category in the functional areas. All ongoing activities and sites will be stratified into the appropriate functional areas. At a minimum, three ongoing activities and/or sites will be randomly selected for the monitoring period. Ideally, an ongoing activity and/or site will be selected from Public Use & Enjoyment, Facility Operations & Maintenance, and Commodity & Commercial Uses functional areas. As timing and funding permit, ongoing activities and/or sites will be randomly selected from each applicable sub-category in the three functional areas.

New Projects

All new projects implemented during the monitoring period, including projects that are implemented over multiple years, were stratified into the appropriate functional areas. One project was selected from each functional area, excluding Management & Administration because new projects do not fall in this functional area.

Oak Glen Hazardous Fuels

Monitoring

The field review of the Oak Glen Hazardous Fuels project implementation from FY16 occurred on June 6, 2017 on the Front Country Ranger District. District Fuels Officer Lauren Blake led the District Staff. This project falls under the Resource Management and Fire and Aviation Management functional areas.

The project implementation in FY16 included burning of piles from FY 2015 cutting treatments, completed via agreements with other cooperating agency crews. Burning activity has not been an issue on this project, however size of burn piles has brought forth some constraints. The goal of this project has been to leave 40-50 percent of the vegetation however due to the terrain, this would not allow for safe traveling between piles due to a lack of a travel path. Therefore cutting was overachieved and piles were larger than anticipated in order to execute the project safely. Even with the heavy cutting, there were no erosion issues and the project goals were successfully met.

Mapping errors were detected when laying out the boundaries of the project and incorporating avoidance areas for several species' habitat. Successful communication between specialists on the ground allowed for efficient adjustments to be made to the project boundaries and to the avoidance areas to effectively meet the project goals and protect resources.

Conclusions

The Oak Glen Hazardous Fuels implementation is consistent with Forest Goal 1.2.1, 1.2.2, and 1.2.3 to reduce the potential for widespread losses of montane conifer forests caused by severe, extensive, stand replacing fires, to reduce the number of acres at risk from excessively frequent fires while improving defensible space around communities, and to maintain long fire-free intervals in habitats which are slow to recover respectively. This project implements LMP Strategies FH2, FH3, Fire 2, Fire 4, and Fire 5 successfully – "minimize vegetation type conversion (permanent or long-term loss of plant communities) resulting from increased human caused fires; protect natural resource values at risk from wildland fire loss that are outside the desired range of variability, or where needed for wildlife habitat improvement; reduce the fire threat to communities using mechanical treatments, prescribed fire and herbicides; integrate all fire management activities with those of other government agencies and conduct fire management activities in a cost effective manner; and maintain the existing system of roadside fuelbreaks and fuelbreaks along watershed boundaries to minimize fire size and the number of communities threatened by both fires and floods respectively".

The Oak Glen Cal Fire Burn Piles project implementation for FY16 resulted in fuels reduction while protecting resources. Good communication and coordination between project leaders and specialists helped keep this project within the level of effects analyzed under NEPA. The district would like to pursue the use of more in house crews to accomplish more work in the future so as to be more efficient in the implementation process and to enhance our workforce level of experience and skillset. The district looks forward to the current improvements being made to the burn plan program in order to utilize

burning as a tool more often in the future. The district did communicate the need for more burn bosses on the forest in order to implement this work, which requires specific training.

Recommendations

- Continue close coordination between project leads and specialists for good results.
- Prioritize in house projects for in house crews whenever feasible since they are most familiar with the project work and associated design criteria.
- Increase burn boss certifications across the forest to efficiently execute the burn program.
- Consider cut, pile, burn and repeat operations in order to execute the project specifications safely and within the proposed activities.
- If overachievement of proposed activities is required to meet safety goals, such as overcutting of vegetation, ensure collaboration with hydrologist to implement any erosion control measures, and any other appropriate specialists.

Van Dusen Abandoned Mine Closure

Monitoring

The field review of the Van Dusen Abandoned Mine Closure project implementation from FY16 occurred on July 20, 2017 on the Mountaintop Ranger District under the Resource Management functional area. Mountaintop Botanist Robin Eliason led the District Staff and Forest Leadership Team in the discussion.

The project objective under the Abandoned Mine Lands (AML) program was to reduce the threat to the public from open abandoned mines. Project implementation involved installation of a bat-friendly closure structure that allows bats to fly in and out but prohibits entrance by people. The mine adit is known to support several species of bats. Due to the proximity to the Big Bear area, it was known for evening recreational activity and had high levels of visitation and vandalism. The mine closure and clean up of trash/litter was accomplished through the Region 5 AML program, and gate installation was contracted out to a contractor. District biologists helped conduct bat surveys and closure effectiveness monitoring.

Conclusions

This project implements LMP Strategy WL 1 successfully – "manage habitat to move listed species toward recovery and de-listing. Prevent listing of proposed and sensitive species".

The project successfully met objectives by reducing the risk to the public while improving habitat conditions for rare bats.

Recommendations

- Keep mine closures integrated with other program areas and continue to monitor their effectiveness.
- Continue to work with the Region 5 AML program to support efficient funding and implementation of the closures.
- Consider including interpretive education when the opportunity arises to educate people on the significance of the bat populations and habitat.

Southridge Fuelbreak Fuels Reduction and Pile Burning

Monitoring

The field review of the Southridge Fuelbreak Fuels Reduction and Pile Burning Project implementation from FY16 occurred on June 20, 2017 on the San Jacinto Ranger District under the Resource Management and the Fire and Aviation Management functional areas. District Division Chief Freddie Espinoza led the District Staff.

Project implementation during FY16 included force account cutting, piling, and mastication of hazardous fuels, as well as pile burning of piled fuels within the fuel break footprint.. The project was successful however thick vegetation surrounding the burn piles which made it more challenging and minimization requirements limited implementation efficiency. The documents that included these measures were written by external teams and were not in accordance with some of the specialist recommendations, therefore requiring further communication and coordination. A majority of staff support the idea of proposing broadcast burning in the future as a more efficient tool that also supports the habitat management goals for the area.

Conclusions

The Southridge Fuelbreak Fuels Reduction and Pile Burning Project is consistent with Forest Goal 1.2.1, 1.2.2, and 1.2.3 to reduce the potential for widespread losses of montane conifer forests caused by severe, extensive, stand replacing fires, to reduce the number of acres at risk from excessively frequent fires while improving defensible space around communities, and to maintain long fire-free intervals in habitats which are slow to recover respectively. This project implements LMP Strategies FH2, and FH3 successfully- "minimize vegetation type conversion (permanent or long-term loss of plant communities) resulting from increased human caused fires; and to protect natural resource values at risk from wildland fire loss that are outside the desired range of variability, or where needed for wildlife habitat improvement".

Recommendations

- Continue to work with specialists on updating any NEPA compliance documents through the use of an SIR or NEPA review team before implementation.
- Collaborate with research stations when opportunities arise to support projects that involve research with broadcast burning.
- Consider the use of herbicide in future proposed actions to meet fuelbreak objectives.
- Discuss the need for data collection and monitoring to support controlled fire use for meeting management goals.
- Continue coordination between fire personnel and resource specialists, especially with any survey needs and pile placement on steeper slopes, near RCA's and near live trees.

Keenwild Administrative Site Fuels Reduction: Pile Burning Stations

Monitoring

The field review of the Keenwild Administrative Site Fuels Reduction Project implementation occurred on June 20, 2017 on the San Jacinto Ranger District under the Facility Ops and Maintenance and the Fire and Aviation Management functional areas, and was led by District Division Chief Freddie Espinoza.

The project for FY 16 included falling dead trees and selling larger diameter material as firewood when feasible, and burning any remaining fuel in piles. Piles were generally 8 feet by 5 feet in size and were burned in the winter months. Mitigation measures for riparian conservation areas as well as for Quino Checkerspot Butterfly habitat were implemented successfully. There could be improved communication with the District botanist to ensure there are no sensitive plants that require minimization measures during implementation. It is also possible that there are plants present that could benefit from the pile burning activity but there needs to be initial communication in order to conduct the associated monitoring required to make those conclusions. Some staff are concerned that the forest may have a difficult time meeting the purpose and need of the project with so many minimization requirements.

Conclusions

The Keenwild Administrative Site Fuels Reduction Project implementation is consistent with Forest Goal 1.2.1, 1.2.2, and 1.2.3 to reduce the potential for widespread losses of montane conifer forests caused by severe, extensive, stand replacing fires, to reduce the number of acres at risk from excessively frequent fires while improving defensible space around communities, and to maintain long fire-free intervals in habitats which are slow to recover respectively. This project implements LMP Strategies FH2, and FH3 successfully – "minimize vegetation type conversion (permanent or long-term loss of plant communities) resulting from increased human caused fires; and to protect natural resource values at risk from wildland fire loss that are outside the desired range of variability, or where needed for wildlife habitat improvement".

The Keenwild Administrative Site Fuels Reduction Project implementation for FY16 resulted in fuels reduction around an administrative site. Concerns were addressed through design features however GIS layers may need to be updated in order to ensure specialists are able to give accurate minimization measures based on digital data, rather than having to GPS all of the project areas on the ground, which can be time consuming.

Recommendations

- Consider developing further forest direction for silvicultural treatments to support the LMP desired conditions for fuel treatments to include minimization measures while meeting the purpose and need.
- Communicate with the line officer when project objectives are at stake due to minimization measures and allow them to make the best decisions for that specific project.
- Continue to communicate with appropriate specialists on projects to ensure proper minimization measures and monitoring are implemented before, during and after the project implementation.
- Work with GIS early on in the development of the project proposed action to ensure data is accurate for use in the NEPA analysis.
- Continued coordination between fire personnel and resource specialists, especially with any survey needs and pile placement on steeper slopes, near RCA's and near live trees.

Mountain Yellow Legged Frog Recovery

Monitoring

The field review of the Mountain Yellow Legged Frog Recovery Project implementation occurred on June 20, 2017 on the San Jacinto Ranger District under the Resource Management functional area, and was led by Wildlife Biologist Ann Bowers.

The Mountain Yellow Legged Frog Recovery Project implementation for FY16 resulted in effective monitoring of a closure area and is part of a larger reintroduction program with adjacent sites in Dark Canyon. The part of the project that was being monitored was the decision for a closure order at the Fuller Miller Creek day use site. As a part of the closure the district has successfully implemented LMP Appendix D mitigation measures including education and management presence at this particular site. At an adjacent site in Dark Canyon, perimeter control and redirection of use are also being implemented.

Monitoring has concluded that any mortality that has occurred is not linked to recreational use and no take has been determined for this site.

Conclusions

This project implements LMP Strategy WL 1 successfully – manage habitat to move listed species toward recovery and de-listing. Prevent listing of proposed and sensitive species.

The Mountain Yellow Legged Frog Recovery Project implementation is consistent with the LMP Standard 11 (S-11): When occupied or suitable habitat for a threatened, endangered, proposed, candidate or sensitive (TEPCS) species is present on an ongoing or proposed project site, consider species guidance documents (see Appendix H) to develop project-specific or activity-specific design criteria. This guidance is intended to provide a range of possible conservation measures that may be selectively applied during site-specific planning to avoid, minimize or mitigate negative long-term effects on threatened, endangered, proposed, candidate or sensitive species and habitat. Involve appropriate resource specialists in the identification of relevant design criteria. Include review of species guidance documents in fire suppression or other emergency actions when and to the extent practicable.

The monitoring and public contact/education outreach at Dark Canyon and Fuller Mill Creek is a result of implementing S-11.

The project is also consistent with the LMP Standard 34 (S-34); where a threatened, endangered, proposed, candidate, or sensitive species occurs in a recreation site or area, take steps to avoid or minimize negative impacts to the threatened, endangered, proposed, candidate or sensitive species and its habitat. Use the least restrictive action that will effectively mitigate adverse impacts to the species and habitat.

The closure order for the Fuller Mill Creek site includes the creek and riparian areas but leaves the upland area open for recreation use. The daily log of monitoring the closure effectiveness to include the issuance of citations has proven to be successful in meeting the goals of the closure.

Recommendations

- Continue to work in close coordination with other specialists on design features to protect all natural resources in the riparian habitat.
- Continue to execute monitoring and surveys on schedule using partners and volunteers in order to efficiently and effectively implement the project monitoring requirements.
- Continue to use education via interpretive signage and other tools such as the R5 spotlight to share the success story of the collaboration involved and the contribution this project has on the conservation of the species.

- Continue to use the least restrictive action that will effectively mitigate adverse impacts to the species and habitat including closure of the creek area only rather than a full site closure.

Crab Creek Bridge Construction

Monitoring

The field review of the Crab Creek Bridge Construction project implementation occurred on July 20, 2017 on the Mountaintop Ranger District under the Facility Operations and Maintenance functional area, and was led by Assistant Forest Engineer, Josh Direen.

The project consisted of replacing the existing damaged ford crossing where Crab Creek crosses Forest Service Road (FSR) 3N16 with a concrete bridge structure. Design features and BMPs were provided based on specialist input to protect wildlife, botanical and hydrologic resources. There were concerns that the guidance provided for protection of the lemon lily was not met. There were also concerns with the input on watershed BMPS coming from specialists outside the watershed department. However as an update, this fiscal year 2017, there was an engineering field day where staff mitigated the erosion problems by planting the site with willows and sedges, placed rock in channels, and placed wood chips on slopes as well as planting milkweed seeds for the Monarch butterfly habitat. Staff involved included engineers, a hydrologist and restoration staff. The project was a successful completion of a rare case of bridge construction on San Bernardino National Forest lands.

Conclusions

The Crab Creek Bridge Construction project implementation is consistent with Forest Goal 1.1 to improve watershed condition. This project implements LMP Strategy WAT 1 – Watershed Function and Trans 1 – Transportation Management by promoting sustainable resource conditions for surface water flow and Fac 1- Facilities Maintenance Backlog – Upgrade site utilities for efficient operation and Reduce the backlog with priority for health and safety and accessibility compliance.

Recommendations

- Continue to use the CE checklist to document categorically excluded decisions that do not require a decision memo, in order to document references used to support findings of no extraordinary circumstance.
- Continue to work closely with the specialists to ensure that design features are being met during implementation.
- Continue to implement any project improvement techniques as a team including various staff and specialists for successful implementation of resource protection measures as a result of past monitoring.

Alpine Pedal Path Project

Monitoring

The field review of the Alpine Pedal Path Project occurred on July 20, 2017 on the Mountaintop Ranger District under the Public Use and Enjoyment functional area, and was led by Assistant Forest Engineer, Josh Direen.

The forest received major trails funding from the regional office in FY15 to complete reconstruction and widening of 1.6 miles of trail from Stanfield Cut-off to Serrano Campground. The forest had several partners interested in helping with the project, which includes: City of Big Bear Lake, Southern California Mountains Foundation (SCMF), California Land Management (CLM), and Big Bear Municipal Water District (BBMWD). A cost-share agreement was signed with the City of Big Bear Lake in June 2015. During FY16, additional funds were acquired through grants awarded to the City and additional partner contributions. With the additional funds, the project scope was expanded to include the remaining 0.89 miles of trail for reconstruction and widening, replacement of two footbridges on the path, as well as a short 430 foot path extension on the east end for future City trail network connection. The majority of the construction was completed in FY17.

Conclusions

The Alpine Pedal Path Project is consistent with Forest Goal 3.1 to provide for public use and natural resource protection. This site implements LMP Strategy REC 2 – Sustainable Use and Environmental Design by managing the site within the limits of the identified capacities.

This project is a multi-year project and was being implemented under the initial decision memo signed in 2014 when the field visit took place to view the additional trail included in the 2016 decision.

Recommendations

- Continue to use efficient methods for completing NEPA analysis when feasible and within the NEPA regulations and policy.
- Continue to use IDT NEPA review processes such as CE checklists to determine if there are extraordinary circumstances, when feasible and for efficient decision making.
- Continue the use of partners for efficient and effective monitoring and reporting and for maintenance of signs and fencing to ensure a safe project workplace.

Riverside County Department of Waste Resources' Idyllwild Green Waste and Household Hazardous Waste Transfer Station Special Use Permit

Monitoring

The field review of the Riverside County Department of Waste Resources' (RCDWR) Idyllwild Green Waste and Household Hazardous Waste Transfer Station SUP occurred on June 20, 2017 on the San Jacinto Ranger District under the Commodity and Commercial Uses management functional area, and was led by John Ladley, District Recreation Officer.

This project included the reissuance of a special use permit to continue the maintenance and operation of a green waste grinding site and transfer station in the Idyllwild area, with the same operation and function as the previous permitted use as well as the additional community service of accepting electronic waste and recycle-only household hazardous waste. The reissuance was done through a CE checklist to ensure no extraordinary circumstances existed and to document those findings.

The project is a successful collaboration between local and federal government agencies working together to bring a needed service to the community but there is work needed to ensure compliance of the permit. Existing weed infestations are a concern as well as gullies that have formed through the site and could potentially be impacting water quality and further spreading the non-native invasive plant species that are present. In addition, there is a concern regarding the local presence of the gold-spotted oak borer (*Agrilus*

coxalis) and the need to grind wood fast enough and small enough to prevent the spread of this beetle that has infested and killed large diameter oak trees across Southern California. Lastly, the district is awaiting confirmation from the permittee on whether they have completed a Storm Water Pollution Prevention Plan (SWPPP) to ensure compliance with the Clean Water Act.

Conclusions

The RCDWR Idyllwild Green Waste and Household Hazardous Waste SUP is consistent with the National Strategic Plan Goal 6 and Goal 4 by focusing on mission related work in addition to that which supports the agency goals and helping meet energy resource needs, respectively. This activity also implements LMP Strategy Lands 2 – Non-Recreation Special Use Authorizations because an operations and maintenance plan has been developed and approved. It also supports the LMP Strategy that existing uses are expected to continue and emphasis will be given to resolving issues related to land encumbered by existing authorizations rather than processing new authorizations.

The absence of a permit administrator has brought attention to the need to have someone designated as a secondary permit administrator to ensure there are no bottlenecks to making progress on the implementation of the permit requirements.

Recommendations

- Continue to ensure all activities occurring on NFS lands are authorized and include specialist input and review before issuing permit.
- Develop a weed management plan for this area to ensure success in minimizing the spread of existing noxious weeds and include partners in this process.
- Educate and communicate on the local infestation of the gold-spotted oak borer and proper eradication and prevention methods.
- Ensure an up to date SWPPP is completed in order to keep Forest and permittee in compliance with the Clean Water Act, regarding point source pollutants.
- Continue to implement erosion control measures to prevent further gullies from forming.
- Ensure an alternate permit administrator is designated if the primary administrator is absent for extended periods of time.

North Fire BAER

Monitoring

The field review of the North Fire Burned Area Emergency Response implementation occurred on June 6, 2017 on the Front Country Ranger District under the Resource Management functional area. Front Country Ranger District Ranger Christine Hill led the District Staff in the discussion.

This discussion took place at the San Gorgonio FERC site. Project implementation activities that were discussed included the fire closure, installation of gates, special use permit rehabilitation efforts, and archaeological and biological surveys and monitoring.

Issues arose with determining gate locations and positions and there was a need to implement the installation quickly due to other road closures attracting vehicular access and use to the burn area. The

Blue Cut fire overlapped with the North Fire in some areas and there were issues with how to handle the rehabilitation efforts in those areas effectively and efficiently.

Conclusions

The North Fire BAER implementation activities implement LMP Strategy WAT 1 – Watershed Function and Trans 1 – Transportation Management by promoting sustainable resource conditions for surface water flow. The implementation is a good example of successful collaboration between multiple disciplines in an emergency situation.

Recommendations

- Continue to use efficient methods for implementing closure effectiveness such as gate installation by modifying existing road contracts when possible.
- Prepare an implementation plan in the case of unusual weather such as the heavy rains that were experienced only 3 days after the North Fire.
- Continue to work with engineering and specialists to improve gate locations and design in order to become more successful at eliminating trespass into closure areas.
- Continue to work with special use permittees and balance priorities for meeting their rehabilitation needs with the forest rehabilitation needs and timelines.

Cosy Dell Mitigation Land Purchase

Monitoring

The field review of the Cosy Dell Mitigation Land Purchase occurred on June 6, 2017 on the Front Country Ranger District as part of the Commodity and Commercial Uses management functional area. Forest Environmental Coordinator Tasha Hernandez led the District Staff in the discussion.

The project consisted of the transfer of 45.09 acres on the Cosy Dell property (mitigation land) from The Wildlands Conservancy (TWC) to the Forest Service, as required by the Burlington Northern Santa Fe Railway. The Regional Land Adjustment Team assisted the Forest with this land transaction.

The Wildlands Conservancy (TWC) worked as a partner to the Forest Service and with Global Signal (Crown Castle) on an amendment to the existing Global Signal's communication site easement as requested by the Forest Service, in order to clarify that the easement will only affect property remaining with TWC and that all outstanding communications leases will affect the TWC remainder property and not the Forest Service property.

The physical condition of the property was deemed acceptable with the exception of miscellaneous debris and some ash blocks uncovered by the fire that moved through the area. TWC reported that they had cleaned up these items. A site visit was necessary before transfer of the land to the Forest Service. The site visit was to be completed within a few days of land transfer to the Forest Service. Forest personnel conducting the site visit were to determine that there was no new occupancy, no new activity, or dumping of waste or hazardous materials on the land transferring to the Forest Service.

Conclusions

The Cosy Dell Mitigation Land Purchase project is consistent with the LMP Strategy Land 1 – Strategic Acquisition, to acquire lands that enhance public use, allow for continued public access, improve habitat linkage, or contain special resources, such as threatened or endangered species, or riparian habitat; and to resolve encroachment from adjacent private lands.

The Cosy Dell Mitigation land purchase was a success story of working collaboratively through a partner to increase efficiency and reduce time to implement a land exchange.

Recommendations

- Continue using partners for the transfer of lands and associated funds in the case of mitigation and when complicated issues such as hazardous material and/or easements are included in the exchange.
- Follow up on site visit results and any additional outcomes on the land exchange.

Ongoing Activities and Sites

One ongoing activity and site was selected from Public Use and Enjoyment. One ongoing activity site was selected from Facility Operations and Maintenance. One ongoing activity was selected from Commodity and Commercial Uses.

Snow Summit Ski Area Summer Use

Monitoring

The field review for the Snow Summit Ski Area Summer Use occurred on July 20, 2017 on the Mountaintop Ranger District under the Public Use and Enjoyment and the Commodity and Commercial Uses functional areas. Mountaintop Recreation Staff Officer David Kotlarski led the District Staff and Forest Leadership Team through the discussion.

Ongoing activities at the site that were discussed and monitored included both summer and winter uses. Activities include mountain-bike trail development, small zip-line and numerous recreation events such as festivals and bicycle races. Additionally, the ski lift transports hikers and "sight-seers" to the top of the mountain for grand views of the new Sand to Snow national monument and the lift transportation assists visitors with accessing our recently completed Skyline system trails.

Conclusions

The Snow Summit Ski Area Summer Use project supports Goal 3 linked to the National Strategic Plan to provide outdoor recreation opportunities, meeting Objectives 1 and 2, and implements LMP Strategy REC 2 – Sustainable Use and Environmental Design by managing the recreation sites within the limits of the identified capacities.

Design criteria such as limited operating periods and avoidance areas have been successfully communicated by our resource specialists. Climate change is reducing winter activities and the winter resorts are trending toward year round activities to maintain viability and economic sustainability.

Recommendations

- Continue with vigilant permit administration and monitoring of permitted ski areas.

- Stay engaged with new ski area proponent to efficiently discuss and plan for potentially increased summer uses.

Bee Canyon Road Maintenance

Monitoring

The field review of the Bee Canyon Road Maintenance project implementation occurred on June 20, 2017 on the San Jacinto Ranger District under the Facility Operations and Maintenance functional area, and was led by Assistant Forest Engineer, Josh Direen.

Ongoing activities at the site that were discussed included the annual consistent need for spring road maintenance, OHV use, and illegal shooting activities. This project was also part of the annual BMP monitoring and scored well and can be found in the BMP monitoring section of this report.

The annual road maintenance is extensive and consists of rehardening the road at the culvert locations, crossings, and drainages, and pavement in some sections, along with rip rap where necessary. The road is not being considered for repavement because that would place the road in the next user level/category and it would not be accessible for OHV users. This would require an amendment to the travel management decision. Reroutes were discussed but there are no viable or practical options.

Conclusions

The Bee Canyon Road Maintenance project implementation is consistent with Forest Goal 1.1 to improve watershed condition. This project implements LMP Strategy WAT 1 – Watershed Function and Trans 1 – Transportation Management by promoting sustainable resource conditions for surface water flow and Fac 1- Facilities Maintenance Backlog – Upgrade site utilities for efficient operation and Reduce the backlog with priority for health and safety and accessibility compliance.

The project has been successful at meeting the goals, however monitoring will continue to determine how best to manage this road in the future.

Recommendations

- Continue to include specialists in the design and implementation of road projects to improve monitoring effectiveness.
- Continue to use the CE checklist to document categorically excluded decisions that do not require a decision memo, in order to document references used to support findings of no extraordinary circumstance.
- Consider this road if any future funding opportunities become available in order to relieve the annual budget for its maintenance.

San Gorgonio FERC

Monitoring

The field review of the San Gorgonio FERC under Special Use Permit occurred on June 6, 2017 on the Front Country Ranger District as part of ongoing activity monitoring under the Commodity and Commercial Uses management functional area.

The existing FERC project that is being monitored is a part of an ongoing activity under a special use permit's operations and maintenance but the decommissioning activity associated with the surrender of license held by Southern California Edison is part of a separate Environmental Assessment that is underway.

The project continues to require administration of maintenance activities until the decommissioning is complete including replacement of broken portions of pipes, broken flumes, new diversions, etc. There is a need to address the issuance and administration of a temporary permit to Southern California Edison while the FERC decommissioning EA and licensing is being completed.

Conclusions
The San Gorgonio FERC Decommissioning Project is consistent with the National Strategic Plan Goal 6 and Goal 4 by focusing on mission related work in addition to that which supports the agency goals, Objective 3, and helping meet energy resource needs, Objective 1. This activity does not implement LMP Strategy Lands 2 – Non-Recreation Special Use Authorizations because an operations and maintenance plan has not been developed, although one is being developed for the decommissioning and relicensing.

Future authorizations will need to include specialist involvement and input to the authorization in order to ensure successful administration of the authorization. Hydrologic monitoring would greatly benefit this project.

Recommendations
- Ensure all activities occurring on NFS lands are authorized and include specialist input, review and approval at various stages in the planning and implementation process.
- Request an Operations and Maintenance Plan as required under the special use authorization.
- Continue to consult with the Office of General Council attorneys for guidance on how to handle authorizations involving FERC licensing that include authorities out of the jurisdiction of the Forest Service but require an authorization to be tied to the use.

LMP Amendments

The LMP is a dynamic document that can be amended in response to:

- Errors and or discrepancies found during implementation;
- New information;
- Changes in physical conditions;
- New laws, regulations, or policies that affect National Forest management.

The amendments to date are listed in the table below. Supporting documents are kept on file in the LMP Tracking Notebook. We frequently learn about the need for amendments through monitoring.

Table 10: LMP Amendments

Amendment	Implementation Date	Type of Change
1.	October 24, 2005	Errata
2.	April 21, 2006	Reissuance of Record of Decision (ROD) due to technical error in the FEIS regarding omission of public comments on wildlife issues and the agency's responses in the printed and published materials. Began a new 90 day appeal period April 21, 2006 which ended July 20, 2006. The Plan went in effect October 31, 2005 and will remain in effect. The decision to select Alternative 4A did not change.
3.	April 2006	Errata- San Bernardino National Forest LMP – 1 page of errata specific to the Forest.
4.	September 2006	Errata- for Published Documents- southern California Forest Plans Revision. This is the final errata published for all 4 southern California forest plans. It is 31 pages and includes all prior errata. Available on website http://www.fs.fed.us/r5/scfpr/projects/lmp/errata
5.	September 8, 2006	Administrative Correction (36CFR 219.7). Correction to LMP Part 2, p.16. Table 487. Designated Utility Corridors-San Bernardino National Forest. Added Devers-Valley No. 1, a 1.8 mile 500Kv (1) utility corridor to table. This corridor occurs on the San Jacinto Ranger District and was inadvertently left out of the table during the plan revision. The entire Devers –Valley No. 1 correction is available on the Forest website.
6.	January 14, 2008	LMP Amendment. USDA FS Designation of Section 368 Energy Corridors on NFS Land in 10 Western States. Decision by Secretary of Agriculture to Amend Land Management Plans.
7.	January 11, 2010	LMP Plan Amendment. Designation of the Ranger Peak and Red Mountain Communication Sites.
8.	January 11, 2010	LMP Plan Amendment. Designation of the Lake Hemet Communication Site.
9.	September 20, 2011	LMP Plan Amendment. Exception for Ramona Hog Lake Road culvert to be designed to BIA's 25 year flood capacity.
10.	June 8, 2012	LMP Plan Amendment. Exception for 160 ft. tower at the Strawberry Peak Communication Site.
11.	July 11, 2012	LMP Plan Amendment. Designation of the Marshall Peak Communication Site.
12.	October 2014	LMP Plan Amendment. Record of Decision amending and revising monitoring and evaluation requirements from the 2006 Monitoring program.

LMP Updates

LMP Amendments (discussed above) change decisions made by the LMP. Consequently, they require environmental analysis under the National Environmental Policy Act (NEPA). From time to time other changes to the LMP are needed which are not intended to affect earlier decisions or Plan objectives. Examples of such changes include corrections; clarification of intent; changes to monitoring questions; and refinements of management area boundaries to match management direction with site-specific resource characteristics at the margin of the maps. We call these types of changes "updates." Since they do not change any Plan decision, they do not require NEPA analysis.

Updates to the San Bernardino Land Management Plan are described in the table below. The supporting document is on file in the LMP Tracking Notebook. There are no updates recommended as a result of this monitoring effort.

Table 11: LMP Updates

Update	Implementation Date	Type of Change
1.	May 31, 2006	Removal of Mill Creek Recreation Tract from the list of Recreation Residence Tracts in Part 2, p.17., Other Designations-Table 481.Recreation Residence Tracts. The Decision Memo was signed May 31, 2006; the Tract was conveyed on December 13, 2007.
2.	December 8, 2009	Removal of Middle Fork Recreation Tract from the list of Recreation Residence Tracts in Part 2, p. 17., Other Designations-Table 481. Recreation Residence Tracts. The Decision Notice was signed December 8, 2009.
3.	September 3, 2010	Incorporation of HR146 - Omnibus Public Land Management Act of 2009, which added to the existing Santa Rosa Wilderness and designated two new wildernesses, Cahuilla Mountain and South Fork San Jacinto, within the San Bernardino National Forest. The Act expanded the Santa Rosa and San Jacinto Mountains National Monument with the addition of the Santa Rosa Peak and Tahquitz Peak areas. The Act also designated portions of the North Fork San Jacinto River and Palm Canyon Creek as 'Wild', portions of the North Fork San Jacinto River and Fuller Mill Creek as 'Scenic', and portions of the North Fork San Jacinto River, Fuller Mill Creek, and Bautista Creek as 'Recreational' Rivers.
4.	October 2014	LMP Plan Amendment. Record of Decision amending and revising monitoring and evaluation requirements from the 2006 Monitoring program, adding a question for mortality risk, adding a question for riparian condition, eliminating the question for general forest activities, adding an indicator for unauthorized roads and trails, and clarifying and updating several indicators to reflect current inventory methodology.
5.	May 2015	The Forest Service transitioned to the new monitoring program as adopted under the new planning regulations (planning rule) in April 2012, and pursuant to the National Forest Management Act. The planning rule requires that existing monitoring programs be changed to meet 8 specific monitoring criteria (36 CFR 219.12(a)(5)).
6.	February 2016	The Decision for the Rattlesnake Mountain OHV Trails Project on the Mountain Top RD changed current zoning along some of the proposed trails from non-motorized to motorized trails.

Table 12: LMP Monitoring and Trend Report Action Plan

Task and Responsible Official	Effective Date
The Forest Supervisor approves all of the recommendations in this report.	October 2017
The Forest FY2016 LMP Monitoring and Evaluation Report will be discussed at a Forest Leadership Team (FLT) meeting.	November 2017
To ensure the recommendations of the on the ground and activity monitoring in section III are reviewed, the Forest Supervisor will inform project and program leaders who participated in the monitoring of the availability of the 2016 LMP Monitoring and Evaluation Report on the Forest website.	November 2017
To promote LMP consistency in future projects, the Forest Supervisor will ensure that the 2016 LMP Monitoring and Evaluation Report is available on the Forest website for all employees.	November 2017

Public Participation

In November 2017, the Fiscal Year 2016 San Bernardino National Forest Land Management Plan Monitoring and Evaluation Report will be made available to the public on the Forest website, or a printed version upon request.

List of Preparers

Tasha Hernandez, Forest Environmental Coordinator, was the primary investigators for this San Bernardino National Forest Land Management Plan Monitoring and Evaluation Report. The interdisciplinary team consisted of the following Forest line and staff:

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Appendix A

Table A 1: Selected Projects and Activities for LMP Monitoring and Evaluation on the San Bernardino National Forest FY 2015.

Unit	Name	Project	Program	Ongoing Activity Site	Monitor LMP Consistency	Monitor Effectiveness	Documentation reviews, field reviews
MTRD	Alpine Pedal Path	X	Public Use and Enjoyment		X	X	Field Review 7/20/17
MTRD	Crab Creek Bridge Construction	X	Facility Ops and Maintenance		X	X	Field Review 7/20/17
MTRD	Snow Summit Ski Area Summer Use		Public Use and Enjoyment and Commodity and Commercial Uses	X	X	X	Field Review 7/20/17
MTRD	Van Dusen Abandoned Mine Closure	X	Resource Management		X	X	Field Review 7/20/17
SJRD	Mountain Yellow Legged Frog Recovery	X	Resource Management		X	X	Field Review 6/20/17
SJRD	Keenwild Administrative Site Fuels Reduction: Pile Burning Stations	X	Facility Ops and Maintenance and Fire and Aviation Management		X	X	Field Review 6/20/17
SJRD	Riverside County Department of Waste Resources Idyllwild Green Waste and Household Hazardous Waste Transfer Station SUP	X	Commodity and Commercial Uses		X	X	Field Review 6/20/17
SJRD	Southridge Fuelbreak Fuels Reduction and Pile Burning	X	Fire and Aviation Management		X	X	Field Review 6/20/17
SJRD	Bee Canyon Road Maintenance		Facility Ops and Maintenance	X	X	X	Field Review 6/20/17

Unit	Name	Project	Program	Ongoing Activity Site	Monitor LMP Consistency	Monitor Effectiveness	Documentation reviews, field reviews
FCRD	North Fire BAER	X	Resource Management		X	X	Field Review 6/6/2016
FCRD	Oak Glen Cal Fire Burn Piles	X	Fire and Aviation Management		X	X	Field Review 6/6/2016
FCRD	Cosy Dell Mitigation Land Purchase	X	Commodity and Commercial Uses		X	X	Field Review 6/6/2016
FCRD	San Gorgonio FERC Decommissioning		Commodity and Commercial Uses	X	X	X	Field Review 6/6/2016

FCRD = Front Country Ranger District, SJRD = San Jacinto Ranger District, MTRD = Mountaintop Ranger District